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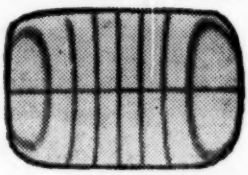

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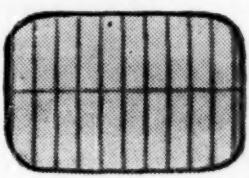

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UNIVERSITIES QUARTERLY

NOTES

Grants to students, 1950-1

"By sending out its circular about the working party's recommendations at almost the same time as its economy circulars, the Ministry has met the obvious response. . . . It is too soon to be certain, but the universities may find it difficult, without sufficient awards, to fill their places." So *The Economist* of April 1st, 1950.

It is not easy to be sure of the probable figures. The total number of places available may be taken as not less than 18,000. It is difficult to believe that supplemented University Scholarships, State Scholarships and Local Education Awards will together add up to more than 8,500. If we add another 1,500 for four-year Teacher Training Grants (though there is common agreement that this kind of grant should be abolished at the earliest possible moment) there will be about 8,000 places for students who will have to be supported from other sources.

The Working Party estimated that in a normal post-war year there would be about 2,000 new students from overseas, and that about 5,000 new students would be able to manage without assistance from public funds. On this basis there would be at least 1,000 available places unfilled next October. Are there still enough suitable candidates for Further Education and Training grants to fill this gap?

Who are the students?

PEP (Political and Economic Planning) have published an interesting broadsheet under the title *University Students : A Pilot Survey*. They note that no comprehensive factual account has been given of the origins and circumstances of university students in England and Wales since the Bryce Commission in 1895. Since then the whole educational system has greatly changed.

The survey covered all the full-time students entering in 1947–48 upon courses at six university institutions—one of the two ancient English universities, two modern English universities, a college of London University, an English university college, and a college of the University of Wales. Statistics were not complete at every

institution on every point studied; but it is perhaps surprising, and gratifying, that the detailed information covered as much ground as it did.

As the broadsheet points out, the figures about social origins confirm on many points widespread impressions: that women students tend to come from higher social groups than their male colleagues (though, interestingly enough, the percentage from *manual worker families* is very nearly the same for both sexes at each university and college); that there is a more even representation of the social classes in Wales and Scotland than at the English universities; and that the children of manual workers (who are nearly two-thirds of the total employed population) provide well under ten per cent. of the students at Oxford and Cambridge, and about twenty per cent. at the modern English university and college.

The figures for schools make plain that a very large number of schools, from all parts of the country, are playing their part in providing acceptable students for the universities. At the ancient university 208 different local authority schools sent boys, 146 of these sending one pupil each. The spread was even thinner for girls: 101 local authority schools contributed, of which 93 sent one pupil each. At the London College no school of any type sent more than five representatives. After less than half a century of local authority grammar schools it is clear that the university population of the country is very broadly based indeed so far as the schools of origin are concerned, and the chances of a child's being born within reasonable reach of a school that can send him on to the university have improved enormously.

The supply of first-rate ability

In his article in this issue Professor Blackett refers to the widely held view that increasing numbers have doubled the supply in the universities of good second-class students but have added few or none at all to those in the highest class. He says that this is not surprising as grants have been available for many years to the ablest boys and girls all over the country; the increased number of grants available simply gives opportunities a little lower down the intellectual scale—that is, to candidates who are good but not first-rate. His argument raises the question whether we have now finally garnered all the first-class ability that there is in the rising generation. Or is the improvement in the schools, especially in the primary

schools, for which everyone is working so hard with the encouragement of the 1944 Act, going to waken into life considerable numbers of young intelligences which would have slumbered on undisturbed in the schools of the past? And is it possible that there are still a few, even of those who can with their present schooling satisfy the tests, who slip through the net? We have little reliable knowledge on which to base an answer to these questions.

The new pattern in the schools

The Ministry of Education and the Central Office of Information are to be congratulated on *Our Changing Schools**. Professor Armfelt had a difficult task. Perhaps one of the least of the difficulties was that the lovely photographs were bound to raise in the minds of his readers the question " How long? " After its sobering effect at first, his answer will be found after reflection to be rather cheering. It was estimated in 1946, he tells us, that the total value of building work necessary to carry out in full the development plans and schemes of further education for England and Wales—plans and schemes which will, we take it, satisfy those who are moved by the photographs—will be about £1,000,000,000. Towards this, in 1949, nearly £45,000,000's worth of buildings had been completed and about £40,000,000's worth was under construction. In spite of everything we seem to have made a start.

Professor Armfelt's reputation for readability is already well established. For many of his readers, though his cause is just, he needed in this pamphlet the persuasive powers of an archangel. Millions of parents have set their hearts on getting their children to grammar school. It is not easy to persuade them that there is a better way until the buildings and good experience of the new-style modern and technical schools are there to back up the argument. But this pamphlet does its work well. Professor Armfelt combines ready sympathies with a sense of proportion.

* *Our Changing Schools*, by Roger Armfelt. H.M.S.O. 2s.

RESEARCH, REALITY AND RELIGION

By H. A. Jones

Provost of Leicester

There are few finer and, in the context, more moving descriptions of the scientific attitude of mind than that given by Thomas Henry Huxley in a letter to Charles Kingsley, dated September 23rd, 1860. Huxley's little son had died, and in the course of a reply to a letter of sympathy from Kingsley, Huxley wrote:—

> Science seems to me to teach in the highest and strongest manner the great truth which is embodied in the Christian conception of entire surrender to the will of God. Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads, or you shall learn nothing. I have only begun to learn content and peace of mind since I have resolved at all risks to do this.*

Everyone who has done a serious piece of research will recognise here the authentic expression of the true scientific ideal. If this ideal is perverted for any reason, personal, political or religious, there is the end of science and of that intellectual freedom on which democracy is based. It is the fear that this may happen which has made so many read with hesitation and with many reservations Sir Walter Moberly's book, *The Crisis in the University*. Can the scientific attitude of mind, as described by Huxley, be reconciled with any attempt to give to university life a religious, particularly a Christian, climate of opinion? At least his book has made it difficult for anyone who is deeply concerned with university life and administration to evade the problem.

The answers which we give to the question are more closely related to the life and work of Huxley than many of us realise. For it is to Huxley, more than to anyone else, that we owe the fact that scientific work has been carried on for seventy or eighty years in an atmosphere which has been "agnostic" in relation to philosophy and religion. Ultimate reality has been believed, or assumed, to be unknowable, and therefore the physical universe has been investigated without any consideration of metaphysical or theological questions. It cannot be denied that this attitude has set free the energies of scientists to an enormous extent, and that any change of attitude must be watched with care; but the results on the work of universities as a whole are sufficiently dangerous to

* *Life and Letters of Thomas Henry Huxley*. Vol. I, p. 219.

warrant the warnings in Moberly's book. This article, in a small way, tries to deal with the situation.

It is a somewhat amazing fact that, not only in the minds of the general public, but among scientists as well, Huxley's agnosticism is assumed to be a direct result of his scientific attitude. A study of his writings will show that this is far from the truth. His agnosticism was derived, not from his scientific work, but from his study of the metaphysics of Hume. It was in his lifetime that the full impact of the thought of Locke, Berkeley, and Hume coincided with the effect on the human mind of the great scientific discoveries and theories of the nineteenth century. This twofold influence was focused, as it were, in him, and it was perhaps natural that Hume's metaphysics should be taken to be the only possible foundation for science. It is difficult to blame scientists for failing to see that Hume, metaphysically speaking, made science as difficult as religion ! So the way was prepared for further developments which have tended to inhibit the restoration or creation of a general religious foundation to the life of the universities.

The growth of technology

The first of these developments was the growth of technological studies, for there is a great difference of emphasis, if not of attitude, between a scientist and a technician. The latter, unless engaged definitely on a piece of technological research, assumes that he is, or can be with the help of his fellow technicians, in complete control of the situation. In fact, the popular idea of a technician is precisely that he is the expert, " the one who knows", and therefore the one who can do what is required. Like Alexander Selkirk, he is monarch of all he surveys. This is necessary in most technical processes, but it tends to produce an attitude of mind which is the exact opposite to the attitude of a scientist as described by Huxley. That may exist to some extent while the technician is discovering what is wrong, but experience shows that the better the technician the more confident he is that he will soon come to the end of his time of discovery and begin to put matters right. So his faculty of wonder and his desire to explore the deeper spiritual realities (on the hypothesis that they exist) are inhibited. Whereas the scientist who is engaged in research is already in the psychological and spiritual attitude which makes worship possible, the technician (as such) has to undergo a psychological revolution before worship is anything

but unreal. This fact has had a growing influence on the mentality of men and women since the days of Huxley. It has greatly strengthened the tendency to treat spiritual reality as either unknowable or non-existent, leaving the world free for the inventors of gadgets, great and small.

Linked with this tendency to confuse the scientific and the technician's attitude of mind was the conception of education as being primarily the acquisition of knowledge, for "knowledge is power". If the public schools and many of the grammar schools escaped this idea, it gripped much else in our educational life, and it occupies a large place in the discussions of the efficiency of our national education in relation to that of other nations. In the minds of many students it has even degenerated into the idea of education as being designed to fit them for a job. They are not to be blamed, but what will happen if economic conditions produce in this country, as they have in other countries during the past thirty years, that most dangerous of all human phenomena, an unemployed intelligentsia?

Teaching and research

A second development which has had a profound effect has been the growth of the teaching side of the universities in comparison with the work of research. Modern society clamours for far more professional men and women, and, from the Science Faculties, for far more engineers and technicians, than it asks for those skilled in research. When to this clamour there is added the demands of an ever-increasing number of students, it is little to be wondered at that the majority of those students have little opportunity to acquire the truly scientific attitude of mind. Results are more important to them than method. The senior members of the university are often almost helpless in the face of this situation, even when they themselves repudiate the attitude to reality from which the situation itself has sprung.

Yet it is in a stringent re-examination of this attitude that hope lies. We can no longer escape from metaphysics, even in science. There is a growing consensus of conviction among those best qualified to speak that the teaching of science in the upper forms of our schools and in the universities should be set against a background of the history of science itself, and that this history should be much more than a history of scientific discovery. It should show the relation

of those discoveries, and of the impulses and needs which led to them, to the metaphysical and general philosophic theories and assumptions of the time. Professor Butterfield has pointed out that the early growth of modern science in the sixteenth and seventeenth centuries involved the overthrow, not only of the teaching of the mediæval Church, but of the teaching of Aristotle. "In this whole picture of the universe [in Dante] there is more of Aristotle than of Christianity. It was the authority of Aristotle and his successors which was responsible even for those features of this teaching which might seem to us to carry something of an ecclesiastical flavour—the hierarchy of heavens, the revolving spheres, the Intelligences which moved the planets, the grading of the elements in the order of there nobility and the view that the celestial bodies were composed of an incorruptible fifth essence. Indeed, we may say it was Aristotle rather than Ptolemy who had to be overthrown in the sixteenth century, and it was Aristotle who provided the great obstruction to the Copernican theory."*

Similarly, if the knowledge and insights derived from modern science are to be truly integrated with the knowledge and insights derived from other aspects of human experience, we shall have to overthrow (or modify) Hume, at any rate Hume as mediated to us through Huxley. The attempt will meet with opposition from at least two quarters. First, there will be many who will be impatient with any attempt of the kind, and will cling to the attitude which has been so widespread in the last eighty years. Secondly, there will be those philosophers who make logical analysis the main business of philosophy, and who deny the name of knowledge to anything else. "There remains a vast field, traditionally included in philosophy, where scientific methods are inadequate. This field includes ultimate questions of value; science alone, for example, cannot prove that it is bad to enjoy the infliction of cruelty. Whatever can be known, can be known by means of science; but things which are legitimately matters of feeling lie outside its province."† This dichotomy between knowledge and feeling, which are unified and integrated in personality, is a token that we have gone astray. Knowledge of the deepest kind, knowledge which demands most of men and women, is not knowledge of things or of logical propositions, but knowledge of persons. From the time of Locke this has

* Herbert Butterfield, *The Origins of Modern Science*, pp. 21, 22.
† Bertrand Russell, *A History of Western Philosophy*, pp. 862, 863.

often been forgotten or denied. We shall not escape from the difficulties in which we find ourselves in education until we return to it. When we do so, we shall see the influence of Huxley in its true perspective.

Fellowship in knowledge

We need more, however, than courses in the history and philosophy of science. We need a renewed sense of the common fellowship of all those who are engaged in the tasks of teaching, research and scholarship. It will be a long time, if ever, before there is a common metaphysic in the sense in which there was in the thirteenth century. But it would be comparatively easy, even in a large modern university, to create a conviction that the many and various subjects of study and research are different aspects and expressions of one deep underlying spiritual reality. This has always been a possibility in the older universities because of the collegiate system. Mr. E. L. Woodward in his autobiography *Short Journey*, and Mr. A. L. Rowse in a more recent book, have each paid eloquent tribute to All Souls, Oxford, from this point of view. "How to describe the charm of a society like All Souls, where there is a body of men to whom, taken together, no period is alien? I can only repeat what a political friend of mine has said—that he does not bother to look up the encyclopædia: he knows that when he comes down into the common-room there will be bound to be somebody who can answer his question."* Even more important is that such a society tends to produce a common fundamental attitude of mind, while allowing for individual differences of conviction. In the university as a whole the scientists would be included, as they are not at All Souls, but this would not make the achievement of a common attitude much more difficult, provided that the scientists were willing to criticise the assumptions of science. We should then, for students as well as for dons, escape from the present paralysing and dangerous situation in which the word "reality" means different things, not only for different individuals but for different academic faculties.

Religion and theology would then take their rightful places in the life of the universities. From the human side they would be recognised as man's search for that ultimate reality to which all subjects of man's study bear witness, and as the expressions of man's

* A. L. Rowse, *The Use of History*, p. 206.

life and thought round which his knowledge and experience can truly be integrated. From one point of view the intellectual history of the last hundred years has been the history of the attempt to make one subject after another such an integrating factor in life and knowledge. Physics, biology, economics and mathematics have all had this role assigned to them in turn and by different thinkers. In our time the matter has become of much more than academic interest. The world is approaching the dangerous situation in which mankind will be divided into two armed camps whose inhabitants differ fundamentally about this very question. We dare not act as if only power politics and statesmanship are concerned. The thinkers must restore that harmony in the approach to reality which the thinkers of the last three centuries have broken. For it is in reality itself, and not in any one aspect of the human approach to it, or even in the sum of such human approaches, that the integration of human life can be found. And since we cannot exclude the possibility of an approach from that reality to man, the Jewish-Christian tradition, embodied in the Bible and in history, can rightly be given (as it is increasingly given) an honoured place in university life. Modern science is psychologically the child of that tradition, for it was not until man's fear of the universe had been expelled by his belief in the Fatherhood of God that his instinct of curiosity had free play and he began to examine the world in which he lived. The science which has been the result of that examination has tended since Huxley to disown its parent. It will be a happy day for mankind when it returns home, free but in fellowship.

THE EDUCATION OF THE SCIENTIST IN THE UNIVERSITY OF TODAY

By P. M. S. Blackett

Director of the Physics Department of Manchester University

The following remarks are directed in the first instance to the practical task of elucidating what I, as Director of the Physics Department of Manchester University and member of Senate, ought to do in order to meet some of the criticisms which have recently been levelled at the universities. These criticisms come mainly from two directions. From one side, some industrialists demand that university students be trained more directly in various ways to fulfil the needs of industry. From the other, the university staffs are attacked for not providing the moral and intellectual leadership without which, so it is alleged, our civilisation is doomed ; and further, it is taken for granted that the universities in the past have provided such leadership.

After participating in many discussions and conferences, including the particularly valuable one recently organised by the Federation of British Industries ; after reading and, I fear, black-pencilling with more disagreement than agreement the margin of my copy of Sir Walter Moberly's book, and studying some small part of the spate of comments which it has provoked ; after considering what I am now doing as head of my department and as member of Senate, and after considering what in addition I could be doing within the limitations imposed by such dominating facts as the intellectual, political and religious views of my academic colleagues, the family background and home life of the students, the physical lay-out of Manchester University and its environment ; after considering all these things, I find no impelling reason to alter in any material degree the course which I am now pursuing, but do feel impelled to be more energetic and efficient in pursuing it.

To be frank, I must confess to some surprise in finding myself rather complacent about our present university policy, at any rate as concerns the scientific departments, and rather conservative about the necessity of any marked change. I do, however, feel this, and the following remarks are an attempt to explain why.

To begin with, I wish to express my view that the universities of England are in excellent shape and are doing as good a job as can

be expected, when account is taken of the facts of England as she is to-day. I suggest that they are fulfilling their contemporary social function as well as, if not better than, they have for three centuries or more. To be more explicit, I think that the departments of science in our universities, which are the departments I know best, are good by any standard and compare well, on the average, with those of any other country to-day. Much of British industry is admittedly backward compared with its American counterpart. British universities are not. I have heard of no American missions to England to teach us how to reorganise our universities.

My general satisfaction with the state of our universities, and in particular with the science departments, does not of course mean that I do not see innumerable ways of improving them in detail. This country unfortunately has its share of weak universities and weak departments. Every effort must be made to improve these. But as regards desirable changes of policy, I feel that they are more of a tactical than a strategic nature at the present time.

The universities have never been leaders

To establish this somewhat complacent attitude it will be useful to take some of the major points on which criticism has been levelled against the universities and to answer them in turn. Lacking the time or space to document all these criticisms in detail, I will try and express them in general terms myself. If objection is made that I am, so to speak, setting up a row of ninepins devised to make a good academic clatter when they fall, I must again plead lack of time and space to hedge all my statements with academic doubts and qualifications.

My first ninepin is the view that the universities are to be blamed for not "rising to the height of the time" and of having failed to give the students a "clear and worthy view of life."

Of course they have failed to do this! When, in history, have the British universities been leaders in the main social and intellectual movements of their time?

Consider the rise of science and of the scientific method in the period from the 16th century to the middle of the 19th. Wolf writes of the early part of this period, "The universities might have been expected to lead or at least to share in this movement of intellectual emancipation. But they did nothing of the kind. For

they were controlled by the Church. It was indeed highly significant of the times that the vast majority of the pioneers of modern thought were either entirely detached from the universities or but loosely connected with them." It is true that Newton, Black and some others of the pioneers held chairs at one of the universities, but the basic indifference of the universities to science continued till the mid-19th century. As far as I know, neither Young, Davy, Faraday, Dalton or Joule ever held a university appointment.

Closely interconnected with the rise of science was the industrial revolution which has transformed our way of life. With this great change the universities had inevitably almost little or nothing to do.

If we turn from the scientific and technical field to that of religious ideas, we find that one of the main events of the 18th century, the rise of Methodism, was quite independent of the universities. In the 19th century perhaps the most characteristic developments were the rise of utilitarianism and agnosticism in various forms. Few would claim that the universities as a whole led in these. In fact, the religious tests at Oxford and Cambridge which confined admission to members of the Church of England were only removed by statute in 1871. It could be claimed that the Oxford Movement provided an example of leadership arising from within a university. However, this movement never impinged on the mass of the population and its permanent contribution to English life was small, for the main reason that its content had minimal relations with the major social and political problems of the day.

In the field of educational reform, Oxford and Cambridge vigorously opposed the foundation of the new universities in the first decades of the 19th century. I never remember reading that there was widespread support in the universities for the inauguration of universal primary education or of secondary education; nor, turning to the general social and political field, was there, I believe, any more support for the abolition of slavery, the Reform Bill, the Factory Acts, the progressive legislation of the 1906 Radical Government or that of the 1945 Labour Government. The most characteristic political development of this present century has been the rise of the socialist movement and the coming to power of the Labour Party. It can hardly be doubted that academics generally were in strong opposition to this movement. The political records of most members of parliament for university seats confirm this. Would the National Health Bill have come into being if it had

rested with the professors of the Faculties of Medicine in the universities?

A welcome contrast to this fairly uniform failure to lead was the initiative by Oxford and Cambridge men of the university extension movement designed to bring the intellectual wealth of the old universities to a wider audience than that provided by the undergraduate of the day.

Their proper task

It is not necessary to labour the point any more. The British universities have not led the main intellectual, religious and social movements of the last three hundred years and it is surely idle to expect them, as collective bodies, to take the lead now, or even for a majority of their members acting as individuals to do so. Of course, many individual leaders of such movements have been educated at a university. But that is another matter.

The undeniable fact that the universities have not been the leaders of these movements is no accident, but is an inevitable result of the social and ideological connections of the universities with the more conservative elements of the middle classes of this country.

If any of my professorial colleagues doubts my analysis, let him look round his fellow professors at the next meeting of Senate and ask himself in what single direction in relation to *any major public issues of our time* could they collectively be expected to lead anyone. Further, it is surely also quite unreasonable to expect them to give the students "a sound philosophy of life" except in terms so general as to be platitudinous.

The task of the universities of England to-day—and an immense and vital one it is—is, in my view, a much more specific and, at any rate on the science side, a much more vocational one. My present job as head of a large Physics department is to turn out as many good physicists as I can. And when I say "good physicists" I mean good for the various jobs to which they will go. I take a simple vocational view of a university. I believe that, historically, universities started as training institutions for specific professions, and that they always have been and probably always will be. However, the professions for which they train do change with the epoch. The view that the universities should not be vocational training establishments seems to be a relic of their nadir in the 18th and 19th centuries, when the vocations for which they

were mainly training, other than the Church and the Law, was that of country gentleman and man about town.

The great contribution that we academics can make to the education of British youth is as specialists, whether of the arts or the sciences, and not, in the present epoch, as moralists. Of course, there can be too much specialisation, but the optimum degree is a technical matter to be decided on its merits in relation both to a particular academic subject and to the particular group of jobs to which the students normally go. This holds for the arts as well as for science. In passing, it may be noted that there must be as many narrow technicians in the arts as in the science faculties. Moreover, what is often forgotten is that there are probably more artists in their own scientific techniques among university scientists than among arts professors. The creative scientists of England are in our universities; the creative poets, dramatists, novelists, artists, musicians are not. Which is, perhaps, the reason why scientists talk less of the crisis of the university than arts men.

In addition to the task of teaching specialised subjects, individuals can clearly bring their personal views on other subjects to bear on the students over a wider field if they so desire. One of the best ways of doing so, in my view, is to respond to the frequent requests of the students themselves to speak at student societies and Unions, rather than through the medium of official lectures. Universities could, perhaps, usefully do more to encourage partisan expositions of particular viewpoints through the organisation of special series of lectures for this purpose. But, by and large, I think the main initiative in this at the present time should come from the students.

The curriculum

What is it then that we, as teachers of science, have to communicate to the students? First and foremost it is our specialist knowledge; secondly, our delight in the activity of being a scientist, delight in the actual processes of experimentation and theoretical reasoning; thirdly, we have to give to the students the opportunity to share the intellectual excitement of exploring the frontiers of knowledge. It is these tasks which I believe our universities are doing extremely well. A fourth task, which we do not, perhaps, do so well, just because the question is apt to lead to political controversy, is to instil a belief in the supreme practical importance of scientific advance, if the full potentialities of mankind are to be realised.

Is not this enough, without wasting our time vainly attempting to thrash out some common "philosophy of life" which by the very structure of our present society must inevitably elude us?

This is a convenient point to set up my second ninepin; the assertion that our present courses, and here I am again speaking mainly of science, are too narrow and academic, too theoretical and too unrelated to the actual work which the students will have to do when they leave the university and go, for instance, into industry. This criticism must be answered. To me at any rate, there is no way out through the reply that university courses are not meant to be vocational anyway. Since I believe the training we should give our physics students should be vocational, and since what we teach is very largely in my own hands as head of the Physics Department, I would have no excuse if the physics courses are vocationally bad. Actually I think they are extremely good vocational courses. Let us start by considering the jobs to which our students go at the present time. As an example, let us consider what happened last year.

Of the output of 70 honours physicists from Manchester in 1949 (this is 10 per cent. of all physicists produced in the country that year), 20 went into industry or to a research association, 23 went on to postgraduate research or advanced academic work of some kind, 4 went into the scientific civil service, 4 to teach; the rest went to national service and will probably mainly go into industry or into teaching on completion. Of the 23 going on to post-graduate work of some kind, perhaps one half or one third will eventually get on to a university staff and most of the rest will go into industry or into teaching. The few men going into teaching is, of course, a matter of great concern at the present time.

We have to discuss the best scientific education for all these people. What should we teach them? Firstly, we can easily decide that we cannot, in general, teach them about all the special fields of science and technology with which they will be concerned in their future jobs, for the simple reason that we do not know what these special fields will be and would not be competent to teach them if we did. The demand that, in our main scientific honours schools, we should teach special subjects of interest to industry, seems to come mainly from representatives of the smaller firms who apparently consider that they cannot afford to take a scientist on to their staff unless he immediately becomes a paying proposition.

The universities do not and should not cater for such misguided demands. The better firms do not make them, as they expect to have to teach their specialised know-how to any new graduate they take on to their staff.

Fundamental knowledge, and research

What is clearly common to the vocational needs of the physics students going to these various jobs is, firstly, a sound knowledge of fundamental physics, and, secondly, the experience of having had contact with some part of physics where new advances of knowledge are being made. The first is an obvious essential, but only through the second can the student learn the technique of original work; this *technique of discovery and the methods of research*, once learnt in the university laboratory, perhaps through the study of cosmic rays, may be applied later in industry to the discovery, say, of the best method of removing dust from flue gases.

Now to teach adequately the methods of research it is essential not only that most of the teachers should be active research workers, but it is also necessary to bring the honours students in their undergraduate courses up to a level where they can properly appreciate the nature of the original work in progress; that is, they must be brought, at any rate, as close as possible to the frontiers of knowledge and be given enough background to understand what is going on there. This is the main justification for adequate depth in undergraduate courses, even though this implies some limitation in breadth. The normal way of doing this is to give a fairly general education in physics in the first two years with opportunity for partial specialisation in the last year. This objective could, of course, be greatly facilitated by the general adoption of a four-year undergraduate course.

To sum up this part of the argument, I would venture to assert that our pure science schools in the universities are, in fact, admirable training for the types of post to which our students actually go.

I have ignored entirely the complex questions of technological education, and of where and when it should be given, and how it should be related to the universities, as I do not feel very competent to discuss it.

My third ninepin is the allegation that the present-day students, though hardworking and worthy, are narrow, dull, apathetic, and

lacking in personality, and that this alleged fact is somehow the fault of the universities or of the students themselves. My observation, on the whole, suggests just the opposite. I am constantly surprised to find so much wide interest and so much character emerging from what is often such drab surroundings and unpropitious social background. The majority of the students at Manchester come from Manchester and the surrounding towns—the region in which so much of the nation's wealth has been made and on the amenities of which so little has been spent. "Over the lower reaches of the Mersey basin the grimy hand of industrialism has left ugly smears. Towns like Warrington, St. Helens and Widnes have little to commend them in these days except their rude vigour and the indomitable spirit of their people who, while they must work at unpleasant trades which fill the air with smoke and smells, keep cheerful hearts." So the *Manchester Guardian* wrote recently. This is the area where in 1931, that is about when the present undergraduates were infants, the unemployment rate rose to 28 per cent. and underfeeding must have been widespread.

The majority of the students (55 per cent.) live at home and often have a long daily journey ; 33 per cent. live in lodgings nearer the University. Only 12 per cent. can be accommodated in the Halls. University life, on the whole, stops about 5.30 p.m., as it is very hard to keep the university life alive during the evening, owing to the distance students have to travel. Though scholarships and grants have been greatly increased since the war, the students are by no means well off and have little money for amusements, outside activities, travel or, incidentally, for buying books; these are among the amenities that help to form character, and they cost money as every middle-class parent knows.

Those who, and I am among them, wish for as much breadth and culture and character as possible in our students, would do well to concentrate on changing the material background of the students' lives in their homes and in the universities, rather than preaching either at them or at the university staffs. The outstanding material need is more and better buildings, especially halls of residence and university amenities generally. Incidentally, one may note that the number and liveliness of student societies is daily proof of the unfairness of the criticism of narrowness or apathy. These activities are seriously hampered on the one hand by poor facilities in the universities for such activities, and, on the other, by

lack of money on the part of the students. The new halls of residence and new university buildings generally should have been built during the inter-war years and especially during the great slump of the 1930s. Now the ambitious building plans of most universities are checked by the general shortage of materials and labour. So Manchester University buildings remain a grimy reminder of bad late Victorian architecture surrounded by early Victorian slums. Nothing can bring much beauty or charm into the life of Manchester University until a serious start is made in the rebuilding of Manchester itself—the city in which few live who can afford not to.

Numbers and standards

This brings me to my fourth ninepin; this is the implied assertion that the undoubted lack of much personal contact between the modern undergraduate at a Redbrick university and the teaching staff could in some way easily be remedied. To increase this contact, more staff are required, particularly more and better-paid junior staff. The closer contact between student and teacher at Oxford and Cambridge depends to a large extent on the relatively large numbers of junior fellows, who can afford to entertain the student. Assistant lecturers in Redbrick universities can rarely afford to do so.

Again, the social life embracing staff and students at Oxford and Cambridge depends not by any means only on the existence of the colleges but on the relative proximity in which everyone lives. Similar contact is impossible when the students mainly live at home, spread over a huge area of grimy industrialism mainly to the north and east, and the staff spread themselves nearly as widely over the more salubrious south and west. When a student lives in Wigan and his teacher in Wilmslow, social contact is not easy.

My fifth and last ninepin is meant to comprise a group of criticisms relating to the increased numbers of students, their standard of ability and their prospects of jobs. The allegations take various forms, varying from that which claims that the increase of numbers has already lowered standards, to the guess that it may do so in the future; and from the statement that we are already reaching overproduction of arts students to that which states we will reach overproduction of science students in a few years' time; and, finally, that in some obscure way things are in a bad way.

Let us consider the question of relative standards compared with pre-war. There is, in fact, no reliable method of judging the relative standards, and any statement that average standards have improved or depreciated must be largely a personal judgment. The view has often been expressed by university teachers that average standards may have, perhaps, slightly improved, but that the relative numbers of very gifted students may not have increased quite in proportion. This latter possibility may or may not be true, but is what one would expect if the educational ladder to the universities was already, before the war, open to nearly all extremely gifted children, whereas it then closed but is now open to many able but less outstanding children.

My personal view is that, as regards science students, the question as to whether the average standard has changed or will change is of small importance so long as the great demand for scientists continues. While there is an urgent demand from industry for all the scientists which the universities can produce, and while the teaching profession is crying out for hundreds of science teachers and is threatened with a serious drop in teaching standards if it does not get them, surely the job of the universities is to select the best students it can and train them as well as it can ; it need not worry whether the resulting product is or is not a little better or a little worse than at some other period.

Conclusion

If the time ever comes when large numbers of science graduates cannot find such employment as is reasonably related to their training, consideration will then be necessary as to what steps should be taken. The simplest would be simply to reduce the intake into the universities and so the size of the departments of the universities. A more attractive possibility is to initiate a general fourth year, either as part of a first degree course, or as an M.Sc. year, and so to reduce both the output and the intake as to keep the total number in the departments about the same. This procedure would greatly facilitate the training of certain much-required specialists in border-line subjects, e.g., geo-physics, chemical engineering, etc. But till such unemployment of science graduates exists I see no need to change our present policy.

In the above discussion I have not mentioned the question whether the total output of science graduates should or could be

increased still further. My impression is, that for a number of, on the whole, adequate reasons, it will not be.

Those of my readers who are prepared to agree that my five ninepins are now lying flat on the floor will, I hope, go further in believing that, by and large, the science departments of the universities are better and more vigorous than they ever have been in the history of this country, that the university scientists know what they are trying to do and are doing it very well—provided account is taken of the actual sociological, political and material background which conditions their whole existence. Finally, I hope many will agree also in deploring the current talk of a crisis in the universities as both untrue in fact, and as a serious impediment to the carrying out of the innumerable practical tasks of making the British universities still better than they are at present.

THE USE OF LECTURES

Introductory Note

The attitude of a man to lectures depends in some measure upon his age. To judge from the articles which follow, experienced university teachers tend to agree that lecturing, even at its best, has only restricted virtues. On the other hand, the younger generation, the undergraduates who in the universities do most of the listening, seem as a rule merely to ask for better lectures.

Some scholars, both old and young, have always taken a high line about lecturing; and this high line has had not a little to do with safeguarding the continuity of a long succession of bad lecturers. Such zealots have conceded only with impatience that a lecturer should be audible. A community of scholars, as they see it, is no place for one man to put on a show and others to enjoy the performance. Art is the enemy of exact scholarship, and especially the art which seeks to arouse the interest of the uninitiate or to tickle the palate of the imperfectly devoted enquirer. To the young student who is in full cry after truth, the terrestrial imperfections of the established scholar to whom he resorts for help are negligible obstacles as compared with the ineluctable difficulties of the intellectual enquiry itself. The older man's scholarship and spirit are everything, his lack of art or of amiability are less than nothing.

The importance and prevalence of this attitude are not to be underestimated. In many university common rooms those who can lecture well conceal it; and when they cannot conceal it they apologise for it. They know that on the evidence of good lecturing alone they are open to a *prima facie* suspicion of being " charlatans ". The accepted place for good lecturing is university extension; and this is held to give no place for the true scholar, who should keep his energy for work in the laboratory or the British Museum.

It is true, without doubt, that there are dangers for the undergraduate in too much skilful or gifted lecturing—or there would be if there were too much. There are dangers, too, for the lecturer himself. Any place where the young man does not have to do the major part for himself, or where the older man has lost his integrity as a scholar or thinker, is not a true university. In the field of learning no one can do another's work for him. But by and large it is evidently coming to be more and more widely agreed that,

even in the best circumstances and on the highest principles, lecturing has a part to play, and such lecturing as there is should be good.

At its lowest lecturing was essential to the system as part of a lecture-plus-examination scheme. This scheme did not necessarily deify the examination as the only thing that mattered. Indeed, it recognised the value of the course of training itself by ensuring that the examination could not be successfully taken without regular attendance at the lectures. It is perhaps easy to under-estimate the educational value even of this system when lecturers and students both accept it sufficiently to put their hearts into working it. But, as all the writers of these articles argue in their different ways, it is certain that it is possible for a university to do much better than this.

It may be that it is a mistake to speak too much in general terms and to neglect the differences between subjects. In another connexion, in this issue, Professor Blackett says that the creative scientists are in general to be found inside the universities, whereas the creative artists—the poets, musicians, dramatists—are not. It is to be hoped, however, that the creative historians, philosophers and critics *are* often in the universities; and it is, perhaps, not surprising that writers representing these disciplines should, with whatever reservations, be convinced of a certain fundamental and indispensable value in the lecture. Here the impact of the speaking voice and of the whole personality may be not only defensible but desirable. It is equally not surprising that the mathematician or the scientist should be attracted by a more detached appraisal of the spoken as against the written word.

It is to be noted that the writers of the articles all agree that the universities would do well to get rid of bad or inaudible lectures, though not, of course, necessarily of the bad or inaudible lecturers. Some scholars can speak and some can write; others can stimulate and guide discussions in small groups, and others can teach individuals. Few can do more than one or two of these things really well. The distinguished scholar who cannot naturally do any of them can only make shift to do his best with the one which he feels he does least badly. There is always the scholar, by no means always the least in effect, who exercises his influence chiefly through his learned colleagues.

I. LECTURES

By Sir William Hamilton Fyfe

Formerly Vice-Chancellor of Queen's (Canada) and Aberdeen (Scotland)

Recalling to mind the lectures I heard at Oxford and the lectures I delivered there, I find it difficult to write about lecturing as a method of university instruction in language appropriate to the chaste columns of the *Universities Quarterly*.

I remember as an undergraduate, at a " Mods. Logic " lecture, overlooking an industrious note-taker, who, in his effort to keep up with the lecturer's delivery, got down little of each sentence beyond " While it is certainly true " and " Yet we must not forget". Another—this must have been at a Greats lecture—took down quite a lot about a " tabular razor". There was (I think at The House) a philosopher of deep learning, who used to hurry into the room, lecturing rapidly as he came, without slackening pace for the whole hour, taking quotations in many languages in his stride. My racing pen once tried to take down a long quotation as Greek; it turned out to be French. Another philosopher presented to his audience the top of a woolly head and read his lecture in breakneck whispers. On being asked to repeat something, he replied with disarming humour " I'm so sorry; I didn't know I could be overheard".

Are there no such lecturers to-day? I am sure there are. I believe they can be heard—or overheard—at every university in the country.

I remember, also, lectures of a different character, delivered by Caird and Pelham. They were in those distant days our chief authorities in philosophy and ancient history. The content of their lectures was of real value, the outcome of long study and original research—it has now been many years in print—and their delivery —the philosopher in Scotch, the historian in English—was lucid and audible, but so rapid that my fingers used to ache with cramp before the hour was ended. " Why," one humbly wondered, " why must we become painful victims of dictation so many centuries after Caxton's useful discovery?"

Then there was a classical don who had the last word on a Roman poet. His lectures were interesting, he covered the whole ground; I could get down every word. But in this case the ancient jest came

true. My son found every word the same. But, since the lecturer was a student all his life, some new words had been added. So my son ought to have sat out every lecture in order to get the new points. I bet he didn't. But in some universities he would have been obliged to attend, father's notes in hand, whether or not any new points had been added. A *reductio ad absurdum* of academic study !

But are there not lecturers who can excite a youthful audience with a stimulus far more invigorating than they are ever likely to get from printed words ? May they not in ringing periods and stinging epigrams arouse the eager interest of their pupils, and give them not merely facts and comment, but the impact of a lively personality ? Are there ? And may they ? I have listened to none such myself. Perhaps I have been unlucky. But even if there are and if they may, I suspect that the effects, like those of a revivalist meeting, fade quickly when the stimulus is withdrawn.

Why has the lecture survived Caxton ?

During one of those war-time courses which universities provided for members of the Overseas Forces, I met in Aberdeen a nice young corporal of the C.W.A.A.C.s who had attended and greatly enjoyed a similar course at Oxford. For her the high light of that course had been a lecture by the then Master of Balliol. " My ! " she said, " that was a lovely lecture. I shall remember that lecture as long as I live." I could well understand that, and we talked together of Lord Lindsay's many virtues. " And what " I then asked " was the subject of his lecture ? " She hesitated, smoothed her hair, almost (but not quite) blushed, and answered " I . . . d'you know, I don't remember ".

There you have a small and appreciative audience, and what, I am certain, was a first-rate lecture. Perhaps other members of the Master's audience got more solid profit than my corporal. But when undergraduate audiences swell to hundreds and even thousands, what can any lecturer do then ? Not long ago I saw in an American paper a photograph taken at a middle-western university. It showed " part of the class in moral philosophy " crowded into a large church. They numbered 1,050. With a magnifying glass I detected a professor dribbling ethics into a microphone. It is from kindness of heart—with a streak of patriotism—that I have taken this example from a foreign country.

If my illustrations give a true picture of university lecturing, why is it that the method has survived the invention of printing? To say that it is the best way of imparting information or that it is, except in rare cases, an inspiration of interest and a stimulus to study, seems to me quite untrue. I believe the system has survived solely because it is cheap and easy. It is easy for the lecturer who reads the same lecture annually with little alteration. (*YOU* don't, dear Reader, I know, but it does happen—at any rate, in other universities.) It is cheap because a single lecturer, drawing a single salary, can address a large number of students; and in these days of megalomaniac universities the lecturer has not only to address an audience far too large for his untrained histrionic ability; the poor devil may be obliged to hold an overflow meeting and give a repeat performance.

More excellent ways

Jowett, who took a poor view of the effectiveness of the lectures delivered by his colleagues, stated as his ideal, that students should read up the subject previously, should make their notes after, not during the lecture, and should amplify and check them by further reading. "Otherwise," he said, "the lectures are no intellectual discipline at all."

That ideal is seldom realised. A student of rare wisdom and virtue might thus find for himself an intellectual discipline, but in a lecture-hall where nothing breaks the silence but the voice of the lecturer and the scratching of pens, there is no genuine personal contact between him and his pupils. And that is the sole justification of oral instruction. Personal contact. Education is a two-way process; a spark passes between professor and pupil, to *and* fro. It is because that spark so rarely gleams in university lectures that I hold them in such low esteem.

There are, of course, more excellent ways followed by some teachers in some universities. My criterion for these is the degree to which they provide personal contact and also ensure that the student is continuously active, not a merely passive listener. For this, the tutorial system of Oxford and Cambridge is the best, provided that the tutors are good. Mine were. Most of them are. But not all. Still the risk is worth running. Some universities, finding the true tutorial system beyond their means, supplement formal lectures by arranging for professors and lecturers to meet

their students individually or more often in small groups. That is good, but not good enough, because too much valuable time is still wasted in lectures. The class* is, I think, far better. It should number not more than twenty; ten is much better. The lecturer can then exact the essential preliminary reading, keep the students lively by genuine discussion and discover the knowledge and the mind of each. His method is not to dictate information—books provide that—but to elicit comment and query, to suggest criticism, to stimulate the taste for study and to show his students how the taste may be satisfied. A professor of philosophy at Oxford, who wore a long white beard and therefore (he was a professor of logic) no tie, used to meet a small group in the Senior Common Room of his college. He talked informally and peripatetically; he asked questions and goaded us into questioning him, and he strictly forbade us to take notes. "I *must* be free," he would say, "to contradict myself." That was educative, a genuine stimulus to study; and since study is, after all, the student's function, it is good to find that the class, which may really serve this essential purpose, is beginning (but only just beginning) to take the place of those formal lectures, which seldom stimulate study but seem rather to aim at enabling undergraduates to obtain degrees by accurately repeating what the lecturer has dictated to them.

The class and the crisis

The reasons for preferring the class to the lecture seem to me overwhelming. I believe the great majority of academics, old and young (especially the young) agree with me. The substitution of the better for the worse has already begun, and the increase in university incomes will certainly increase the pace of the improvement, except in universities which admit more students than they can honestly educate.

There is another, more remote reason for preferring the small class. We hear a lot, but not, I think, too much, about the crisis in the university, the nature of which has been expounded with general, but not universal, acceptance by Moberly and Livingstone and others. The root of their indictment is that the tree of the knowledge of Good and Evil no longer flourishes in the garden of

* Not "seminar," a word that is often devalued from its true reference to a group, usually of graduates, working with a professor at problems arising in his special field of study.

Academe. It certainly does not, even, I suspect, in most departments of philosophy. The remedies suggested are few and not very hopeful. Compulsory "Arts" lectures for students of medicine or science are very rarely effective; the majority of students resent the compulsion and many suspect its motive. Is it an attempt to revive outmoded principles of living, to Christianise the university?

Those who most emphatically voice their fears of this would themselves administer, if they had the power, nothing but the pure milk of Marxian-Leninist materialism, and (mixing their metaphors) sternly denounce the dangers of deviation. Their logic seems weak. But critics of more liberal views agree that a university should not "tune its pulpit". Education is its business, not propaganda. What is needed to fill the vacuum is some opportunity of free discussion of fundamental values by students and staff together. That might easily arise from time to time in a small class. Students are eager for such discussion and would readily produce reliable red herrings to lure the lecturer into that marginal field where his specialty is brought into relation with the principles of the good life. Some members of staff would reject the bait, but might themselves be almost unconsciously lured to evolve their own philosophy. Most would in some degree respond. The lecturer's own tenets would not necessarily carry much weight, not even if he be a professor. That would depend on personality and depth of thinking. Every kind of philosophy and religion would find advocates in the discussion. There might be champions not only of Marx and Lenin but of Mahomet and Buddha. Many strange gods might get an outing. That would be all to the good. It would stimulate reason to work outside the special field of study, and might touch those deeper regions where the motives of action have their source. As a Christian I should welcome with confidence any free and serious discussion. *Magna est veritas et prævalebit.*

It is not the job of a university to *give* students a philosophy of life; and most of them are too young to find one for themselves before graduation. But merely to say "*Junger Mann, erlebe was*" is sheer cynicism. Cats couldn't see in the dark, unless they got their eyes open in kittenhood.

II. TO HELL WITH LECTURES!

By Bonamy Dobrée

Professor of English Literature, University of Leeds

By all means, one hears it said. But that is merely to indulge the age-old and quite honourable if mistaken impulse to empty out the baby with the bath water. After all, lectures have always been the basis of university work, and even if the original reason for them—the absence of printed books—no longer applies, that isn't to say that they have no other reason for existence. It is true, of course, that other methods of teaching or learning invariably mean more staff, and it is sometimes put forward that shortage of staff is the only excuse for lectures; so the argument proceeds that since this is being overcome lectures can go. It is, no doubt, true that there have been too many lectures; we hear sad tales of students being lectured to mental death, with no time for reading or thinking, and we may well suppose that the lecture system has been abused. It appears—I can, thank God, speak only from hearsay—that some dons have lectured in the apparent belief that books did not exist; or, alternatively, that their listeners didn't know how to read (which, to be sure, sometimes happens): but it is time that the question was looked at evenly, and some rationale of lecturing evolved.

There are, it is recognised, different kinds of lectures. There are those that are speculative and those that are informative; there are those at which note-books should be forbidden, and those to which note-books should be brought and busily filled in; there are those which are stimulating and those which are crushingly or exasperatingly dull. Again, there are lectures where the don will pontificate, and those where he will suggest, many factors going to determine which it is he does—the nature of the subject, the stage which he has reached or which his victims can be supposed to have attained—and, indeed, his own genius. There are the born pontificators just as there are some who are too modest. And again, there are the two points of view—that of the lecturer and that of the undergraduate.

Let us look first at lectures from the point of view of the lecturer. A university lecturer, as a general rule, ought to like lecturing. There are some, of course, who hate it, who do it badly, who cannot give spirit to fact, convey ideas, or suggest form—and those people

should not be asked to lecture. They can do immensely useful work in classes, or in directing reading or research. It is bad for lecturing as such, and for any school of studies, for bad lecturers, who hate having to get up and speak out, or to formulate their thoughts in that way, to be forced to try. But for anyone who has the faintest taste for lecturing it is an admirable thing to have to lecture, to have to take trouble not only with the subject matter, but with the way it is conveyed. It is a first-rate discipline for any man who is really working at his subject to have to get it in order, to test out his thoughts and conclusions in that form, to organise his material so that it becomes objective. And besides, it is a challenge, a challenge to one's self, and an exercise in being clarifying and articulate. There are, as already suggested, different kinds of lecture, and a lecturer giving a course, say, of one lecture a week on some special subject, may wish to vary his kind as he goes along. Some lectures may be full-dress lectures, so to speak, academy and academic lectures; others may be exploratory: the lecturer may say, " Here is some stuff I am examining: it seems to me that . . . but it may be that. . . . Further investigation must show . . ." and so on. He may even bring the recordings in his note-book, to discuss with himself in front of his students, to think aloud in front of them: there may be a certain amount of make-believe about this; that is where the art lies.

Being lectured to

Now let us look for a moment at the other, the receiving end. What will a class get from these? From the first kind, the full-dress lecture, the student should get some idea of how to present material, how to argue conclusions, and if the lecturer is any good the audience will get a good deal of, perhaps, unconscious pleasure from the mere form of the thing. The lecturer should have manipulated the minds of his hearers so that they feel nourished, gratified, pleased. The discourse should be a display of certain powers, a performance, perhaps eliciting applause (this was not unknown at Cambridge after the first German war). The undergraduate will have been given some sort of ideal to aim at in the handling and presentation of material—and it is hoped that if he is himself going to lecture later, he will pick up some of the tricks of the trade (and, be it said, receive practical warning of some of the vices). From the other sort of lecture he will see how material is to be tackled, how got together,

how considered and sifted. It may open up to him lines of thought, indicate to him certain aspects to be investigated. He will see a mind at work in front of him—a good mind it is to be hoped—and the good student will gain solace and encouragement from it.

A distinction must be made between the lectures that are "education", and those that are "instruction". The boundaries are necessarily vague, but it can be said that the object of the former is to make the listener use his thinking powers, to test and judge, to exercise his sense of values; whereas the purpose of the latter is to impart information. The former deals in general ideas, or in criticism, and its result should be to develop the speculative powers, to train the faculties to analyse and distinguish, to cultivate the capacities for synthesis: the latter tells him what there is to know or do: it will fill the students' note-books not their minds. It may be argued that even in the educative lecture there must be given also the matter to have ideas about, and the material for criticism. To a certain extent, yes: but the matter to have ideas about will have been obtained (one may be permitted to hope) to a large degree from reading; or it may be that general ideas are being imparted in the light of which future reading is to be interpreted. The educative lecture is the one that is the most fully justified; yet the other sort, the informative, has its uses. It might, of course, be argued that any procedure which involves chalking things up on a board to be obediently copied into note-books and duly regurgitated at examinations is not a lecture but a lesson (it might be nicknamed "a grad-grind"): but although the criticism may serve as a salutary warning as to limits, it is over-harsh. For there is in any subject a great deal of material—fact, substance, whatever you like—with which the undergraduate should not be overwhelmed, which he should not spend his time at ferretting out for himself, but of which he ought to be aware: even so a lecture of this kind must link up the material with the idea behind the whole course of study. An information lecture of another variety can point out material to be studied, books or portions to be read, and what may well, at any rate at this stage, be ignored. It may be said: why not put these things up on a notice board, or distribute lists? And, indeed, if the lecture were on more than a list read out there would be no answer. But the list should be commented on, warnings uttered, reasons given for the advice; and this again must always be focused upon the idea of the course; what is being done in the course, what it is for. And

besides, even a lecture of this sort should have something original in it, not to be found in a book.

The issue now will no doubt be raised as to whether all this would not be much better done in tutorial or discussion classes. There are, no one needs to be told, enormous difficulties in the way of this, chiefly with respect to staffing. But even supposing all these difficulties could be overcome, it would still be a mistake to abolish lectures, for a number of reasons, some of which have been touched upon already. We may, perhaps, first go back to considering a little further the effect of the lecture upon the lecturer. Apart from the discipline it imposes upon him in ordering his material (it is only too fatally easy to leave it about in untidy heaps in the mind if teaching work is confined to tutorials), there is the stimulus of the audience, which occasionally evokes unrehearsed felicities. A man at all sensitive to response in an audience will be induced to give of his best if he feels an audience held by what he has to say, eager for more, and not to be disappointed by an anti-climax. When a man lectures virtue goes out of him, as it does not in a class: and if it is a successful lecture, he will receive energy from his audience. A successful lecture well delivered is a stimulus to thought and further work in the lecturer himself, just as much as a lecture well delivered ought to be to the student who has heard it.

And for the latter, too, something happens in a lecture which does not happen in a class: there is the curious sense of communal thinking and doing, the kind, possibly, that happens in a theatre (a mass-psychology effect, perhaps) with the concentration of everybody on what is happening in front of them. Certain apprehensions seem to be sharpened. Moreover, the students share a common experience, which makes it easier for them to communicate a common interest; and the common interest, the talk it should kindle among the students after a lecture, is of enormous value, bringing about that " clash of young mind on young mind " which Bagehot insisted was the real essence of a university, and which should send the student either to his writing table to formulate something upon paper, or to the library to investigate further. This sense of common purpose together with immense variety—almost the Coleridgian more than usual state of emotion with more than usual order cannot, or at least only very rarely can, issue from the small class.

This is not to deny that the small class, the discussion group, is essential. It is; because it is an occasion in which the undergraduate is not confined to absorbing, but is forced to bring things out. The essay compels him to make the disciplinary effort the lecturer has to undergo in composing his lecture, and the discussion in class makes his mind supple, teaches him to hold his point of view while respecting that of others. It is, however, too easily assumed that tutorial classes are the perfect solution, for it has to be admitted that there are bad classes as well as bad lectures. It isn't every don who is good at directing discussion classes, stimulating argument, guiding the thinking along profitable lines. It requires, perhaps, almost as much innate skill, and training, to be a good "tutor" as to be a good lecturer: and just as some people should be discouraged from lecturing, so some should be restrained from taking classes. In either case more harm than good is done, since dullness supervenes.

Yet most dons can achieve fair competence in either form of teaching: it is true that a genius at lecturing may be a hopeless "tutor," and *vice versa;* but most dons should lecture as part of their work, and take discussion classes. Brilliant lecturers are, of course, rare, but nearly all can acquire some of the technique. Lecturing must frankly be regarded as something of a show, a performance; there has to be something of the actor in the good lecturer; he has to be able to "get it across," and be able to feel or see whether or not he is doing it. There are the positive qualities, tricks of rhetoric if you like, as well as the negative virtue of avoiding vices—mumbling and rumbling over a script with downcast eyes, or taking the daily quota of exercise up and down the quarter deck. A really good lecture is a delight to both sides; but it must be borne in mind that a lecture can be too good, so perfectly rounded that it demands nothing from the audience, and makes them feel that they understand thoroughly what has actually hardly penetrated at all.

This, however, is more likely to happen in a well-thought-out "public" lecture treating generally some fairly wide topic—the kind of lecture there should be more of in the universities, at any rate in the Civic ones. In view of the ill-defined background from which many university students now come, and the increasing specialisation of undergraduate work (the tendency seems to be to expect graduate studies from the undergraduate, undergraduate studies from the

schoolboy or girl), general lectures treating subjects broadly—which need not mean superficially—would be of enormous value. These are especially needed from the scientist, who would have to descend from his mathematical heights, and tell the layman something about the general ideas which emerge from his work, since what is important to man is his conception of himself with respect to the universe. The arts man also should be able to impart to the scientist some sense of the values by which he lives and for which he works —either side avoiding the technological aspects, treating of results rather than of method. All this, however, opens up too wide a subject to be developed here.

The hideous suggestion is sometimes made that lectures should be cyclostyled and distributed. Heaven forbid! For one thing, all sense of impromptu would disappear, and it would force the lecturer to stick to his script (supposing him to have one: the best lectures are probably given from notes); he would never be able to depart on the wings of inspiration, strike that happy illuminating idea, or enter the gate his thought has suddenly opened for him. That would be the way to kill lectures. It would, to be sure, rid the lecture of its attendant curse of note-taking, but the cost would be too high if only for the reasons stated above. But an equally serious loss would be incurred at the other end. Human beings are already far gone on the road of being unable to listen, to take in what is said to them: a lecture at least compels students to do that (or, rather, offers them the chance). It is true that in classes they have to listen, but not with the consecutive concentration a lecture should, in moderation, demand.

It is probable that the right proportion would be one tutorial discussion class for every two or three lectures: the ideal might be four lectures and two classes a week, and one essay, privately corrected though publicly discussed, not more than once a fortnight. It must depend on the subject. The sciences no doubt require a larger proportion of purely informative lectures, as will the technologists (including the linguists). But in the arts, where values are discussed and general ideas individually arrived at are put forward, the educative lecture is of greater importance, if only as an aid to living, which, after all, is the end of education. Bacon was not thinking only of natural philosophy when he said that the true ends of knowledge were solely for the occasions and uses of life. His sense of uses was not purely utilitarian.

III. THE FUNCTION OF LECTURES IN HISTORICAL TEACHING AT THE UNIVERSITIES

By V. H. Galbraith

Regius Professor of History, University of Oxford

Broadly speaking, there are four ways in which the undergraduate acquires a knowledge of history: he belongs to (and often "runs") historical societies and discussion groups, he reads books, he attends lectures, and he reads essays to a tutor, either singly or in an "essay class". Of these methods of instruction, the first is unofficial, unprescribed: it is just a part of the young man or woman's social life at the university and its importance cannot be easily exaggerated. The books and the lectures are immemorial and universal, while the "tutorial system" is historically the peculiar contribution in method of the universities of Oxford and Cambridge. A great deal of the prestige which these universities enjoy as teaching institutions springs from it, and it is an article of faith with 99 per cent. of their alumni that it teaches pupils to "think for themselves" better than an ordered system of instruction in formal lectures. Actually, the tutorial system is in origin an accident, arising out of the "college system", and the weakness of the central university; nevertheless, not only do we believe firmly in it ourselves, but even foreign observers are agreed that it provides an excellent "liberal education" for young men going out into the world, though not normally conducive to research and post-graduate study.

Lecturing and the tutorial system

The question of the proper function of the formal lecture in university training is thus one which we do not and cannot approach simply on its merits. It is mixed up in our minds with the alternative method of the tutorial system, and we tend to envisage a crude opposition of lectures *versus* tutorial system. In fact, of course, lectures play a very great part in historical teaching at Oxford, and some sort of tutorial system (or essay class) will be found in all other British universities. It is nevertheless true that at Oxford a student relies primarily on the guidance and instruction of his tutor, and elsewhere on that given by a balanced and systematic course of lectures covering the whole subject. Whether for this or

other reasons in recent years the lecture system has been somewhat "blown upon" not only in the estimation of the students but of many of their teachers, and it is often thought of as a sort of second best, or even as outmoded in an age which has more or less perfected the production of graded text books, at varying levels and minuteness of treatment.

No one, I suppose, would propose to banish the lecture altogether: but might it not be left to those who have a *flair* for it? a voluntary "extra" not necessarily "taken" by those who prefer to rely on private reading, helped out by some sort of tutorial supervision? Already, I believe, in some universities, the attempt to cover the syllabus systematically has been definitely abandoned. Lecturers lecture on their own special fields, and large and frequent gaps are left which the student must fill on his own initiative. To an old man, reared in the pre-1914 Manchester history school, this is new and strange doctrine.

The great tradition

At Manchester, students in those days attended as a matter of course a high weekly total of lectures, which systematically covered the outlines of Ancient, Medieval and Modern History, and still found time for two special subjects and a thesis. Looking back and trying to see all this objectively, it is difficult to decide how far its success sprang from inherent rightness of the method, and how far from the devotion and enthusiasm of the teachers. That great results were achieved is incontestable, not only in Manchester, but at Edinburgh (under Richard Lodge) and at London (under A. F. Pollard), to take two examples out of many. Nor is it just a question of period. Quite recently old pupils and colleagues of the late Professor Todd at Belfast have produced a book of commemorative essays. In a striking introduction we learn that between the wars, Professor Todd had not only to depend on lecturing for giving instruction, but that for years he had to do nearly all of it himself.

> In Todd's lecture-room a new light dawned on history for generations of undergraduates, especially for those who sat at his feet before the influence of his teaching was felt in the schools. From his rostrum there spoke a worthy disciple of Lodge. Every lecture of his was a work of art, the product of a superb historical interpreter who was also a master craftsman in the English language, an orator of exceptional dignity and power, and above all a fine historian. In his hands the most intractable material assumed

> significant form. . . . His numerous courses constituted a majestic synthesis which, for many of his students, has provided the first and strongest stimulus to serious work in history.

Clearly no one need feel sorry for history students trained at Belfast " in one of the youngest departments " which, for a considerable time " remained the Cinderella of the faculty of arts". But was it only the success of a devoted and remarkable man in spite of the system?

It is impossible to answer with certainty: but, perhaps, two inferences may be drawn. First, in his case, as earlier at the other universities mentioned, success was at least helped by the fact that the number of students was manageable: not, at any rate, half as many as have to be dealt with to-day. However many lectures he gave, Todd was still able to keep in personal touch with his serious students. Secondly, it is clear at Belfast that, as elsewhere, the students gained immensely from a single, dominant personality, methodically and formally impressing his general notions over long periods of historical development. At Belfast we must believe the students saw history clear and saw it whole. Todd gave them a synthesis, which is, after all, the real meaning of a philosophy of history, just because he lacked a staff of juvenile experts among whom the field of instruction might be divided. What, in short, they lost on the swings they gained on the roundabouts.

The aim of historical teaching

It is, perhaps, worth asking ourselves just what we are trying to do in the three or four years of undergraduate instruction. Two trends are outstanding, I think, at the moment—an ever-increasing stress on specialists and experts, which certainly means teachers knowing more and more about less and less, both in time and subject; and an honest desire to make the student " think for himself". The dangers in the first of these developments are obvious enough, while of the second it is pertinent to say that, learning to think *for yourself* is not always to-day learning to think at all. Unless it is preceded by a pretty severe discipline, it is apt to resolve itself into just finding in the past ammunition to support one's natural prejudices. The insistence on thinking for yourself is natural enough at a time when the universities are still full of adult ex-warriors. But this phase has almost passed, and it is at least arguable that young men and women, from the age of 17 to 21,

should first be put through the discipline of broad outlines, authoritatively expounded from the earliest times till to-day. And this discipline the tutorial system, by and large, does not give so well as one of systematic lecturing at any rate for the bulk of the students.

In general, teachers attach less importance to-day to outline courses than they did a generation ago. Yet the roots of the present lie deep in the past, and to my mind a study of history which virtually begins in the seventeenth or eighteenth century is inadequate, even false. It is quite legitimate to take the view that the remoter past is best forgotten, but if so the student should choose another school. It is the whole past, as far as it is recorded, that is relevant to contemporary events, and this inevitably means for the student a lot of hard work, merely grasping the main facts in the long evolution of society. Can there be any serious doubt that a boy from school is not going to profit more from hearing all this expounded *viva voce* than by struggling unaided with text books?

This, I believe, is the crux of the whole matter. When we think of our undergraduate days we recall merely the fact of having attended scores of lectures, the substance of nearly all of which is now entirely forgotten. Sometimes they have left more permanent memorials in note-books which record our garbled and useless summaries of what we heard, note-books which in many or even most cases were never looked at again. What more natural than to assume that these lectures were wasted time—but what more false? They served their purpose at the time, compelling our attention to forces and events which, left to ourselves, we should simply have passed over. At a time when our ignorance of the past was unfathomable, they supplied a modest induction of fact and thoughts and corrected the tendency to ignore whatever was contrary to the natural bias of our outlook. We did not much like it, but was it not the "square drill" of historical training?

To-day we are being reminded on every side (1) that every generation must re-write the history of the past for itself, since our outlook is continually changing, and (2) that personal bias is inevitable, unavoidable and quite all right so long as you do not, by trying to disguise it, turn history into propaganda. Maxims such as these incline the balance towards the more personal system of instruction which we associate with private reading helped out by a tutor. But pressed too far they lead to a sort of historical anarchy. However much history is re-written we are entitled to

believe that past research has made some sort of objective, enduring progress. Certain truths have been established, in the realm of ordinary fact and opinion, which fashion may ignore but cannot destroy. As for personal bias, to admit it is merely to admit our human weakness; but if we cannot conquer it, by struggling with ourselves, we can at least try. On both counts, surely, undergraduates require to have given to them a steady, systematic report, as it were, of the assured results of historical study. The discipline of such outline courses is a salutary experience for undergraduate students. The tutorial or small class method is equally desirable for the intensive study of short-period and limited subjects, while both need to be reinforced by a good deal of private study and those admirable undergraduates' societies and private discussions by means of which the young painlessly educate one another.

The examination, and its implications

In discussing the best way of teaching, we are apt to forget the immediate purpose of all university instruction. No doubt we are out for Education: the students have to be taught to think and prepare for Life: we may above all be anxious to make them into good historians; but the primary purpose of all their efforts, and our instruction—as they see it—is to pass the grilling test of the Final Examination. It is the Final which determines their careers and their salary, and our instruction should bear this in mind. This is not cynicism but sense, and (in particular) it gives the answer to the all-important question, "What is a lecture?" or, if you prefer it, "How should one lecture?" Are there as many ways of lecturing as there are kinds of people? Is each man a law unto himself? To a certain degree yes: but while allowing the possibility of rare exceptions, I am prepared to hazard the generalisation that the read lecture is an abomination. Indeed, I would cheerfully go further and say that there would be an all-round gain to university teaching if lecturer and pupils alike were denied the use of all notes and note-books. A lecture is a personal relation: the mind of the lecturer must be *en rapport* with that of his audience, and this can only come from the spontaneity of immediate thinking, done on the platform—and the more genuinely impromptu the better. The "live" lecture is, of course, a great strain on the teacher, and this no doubt accounts for the popularity of the lecture which is "recorded" in notes or at full length, and has thus only to be

"turned on" when it is due to be given. In my opinion the almost universal custom of "giving" lectures prepared months before in note-books has done more than anything else to shake the faith of the young in lecturing. It is basically even worse than "dictating" notes, bad as that practice is; and the student faced with all this potted learning has no option but to try and get it back on to the paper from which it has just been—in effect—read to him.

Apart even from the intrinsic weakness of the potted lecture, it is practically harmful as a preparation for the Final Examination. A man is examined not on what he has in his notes but on what he has in his head; and it is unreasonable for a teacher who cannot carry enough in his head for a single lecture to judge candidates who in one week have to write, without written or printed aids, ten or more papers covering the whole field of their studies. The lazy method of lecturing from elaborate notes, or even fully prepared manuscripts compels the student to "mug up" small sections of the syllabus in excessive detail, and (since this is impossible across the whole field) to ignore the rest. Contrariwise, it tends to make the lecturer choose subjects more and more limited in time and scope, and thus to justify the traditional criticism that "history burdens the memory without improving the understanding".

It is unnecessary to labour this last point. Whatever we do, the burden of sheer memory work increases with the mere efflux of time, and the true task of the teacher is progressively to integrate and generalise the new detailed knowledge with which time and research weigh us down. There is danger in a growing number of specialists on short periods, each lecturing in detail on his own narrow subject and then, in his capacity as examiner, expecting to get it all back from the student. The most practical way of meeting this threat is to make lecturing the exposition of a living body of knowledge such as any competent historian can carry in his head. If we cannot do this, we are doing more harm than good, for our well-meant efforts are actually increasing the burden the student must carry, and playing into the hands of the real enemies, *viz.* the pedant-teachers whose interest begins and ends in some tiny subject or period, and the bull-necked, merely acquisitive pupils who have an infinite faculty for just learning the stuff.

The object of our History Schools is to give meaning to the whole of the historically recorded past, and as Hobbes remarked three centuries ago, polymathy can never beget understanding.

IV. UNIVERSITY TEACHING

By W. Wardlaw

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The change in the scale of university education has brought many problems, but none of greater interest and importance than those which concern the method and form of teaching. The University Grants Committee, in their recent Report of University Development from 1935 to 1947, state that many university teachers throughout the country are devoting much thought to the technique of university teaching and express the hope that steps will be taken to make the results of any experiments generally known. However, the Committee is of opinion that it is necessary to accept the fact that perhaps for many years to come the lecture must at most universities continue to be the most important and commonest means of communication between the teacher and his pupils. This is a sobering thought. Perhaps the mind is sometimes unfair in the impressions that it specially selects for retention. Yet I do not consider the system of lectures at the universities, as it was in my student days and is now, very satisfactory. If, as the University Grants Committee suggests, lectures are to hold the field as the stable mode of education, the universities must take their responsibilities more seriously and try and raise the standard of lecturing to the highest possible level. How can this be done?

I believe it will be accepted that many lecturers never seem to appreciate that there is an art of lecturing and that something more is required of them than to get together some lecture notes and read them or, worse, dictate them in a monotonous and semi-audible voice to somnolent undergraduates in a lecture room. It has been suggested that every academic teacher after graduation and before appointment should go through a year of training in the technique of teaching. In his excellent book on the British Universities, Sir Charles Grant Robertson has pointed out a real and fundamental difficulty which is often overlooked. "Every educated man and woman knows well that he or she has been fortunate if in twelve or fifteen years of school and university education they have, among fifty or sixty teachers, come under half a dozen men or women who by some unanalysable alchemy of method or inexplicable quality of personality, turned routine into inspiration

and revealed windows and sunlight in what but for them would always be blank and imprisoning walls. . . . Can any training in technique convert masses of at best smouldering coke into perpetually incandescent coals from off the altars of the human spirit?" If this is accepted, ought lecturing other than by geniuses to be almost eliminated? I doubt whether this counsel of perfection would get many votes. The University Grants Committee certainly would not support it. The Committee's comments are worthy of examination: "It must be confessed that in this country too little attention has been given to the form and manner of the lecture. Brilliant lecturers are to be found in every university. But this accomplishment, which is by no means always associated with even the highest academic attainments, depends too much on the accident of temperament and native capacity. Young university teachers might be more systematically encouraged to take serious thought as to the best manner of presenting a subject." In *Redbrick University* the pungent comment is made that but few who are not born lecturers will find this counsel sufficient and that the universities who employ young teachers should see to it that they do more than "take serious thought". The Grants Committee throws out a hint that Institutes of Education in the universities may be helpful here. It seems not unreasonable to require a young Grade III lecturer on appointment to attend during his first year some elocution lessons and some instruction on the theory and practice of teaching. This will give no assurance that in future "the masses of smouldering coke will become perpetually incandescent coals", but it may mean that at intervals the smouldering coke will show signs of a flame. Nothing, of course, is easier than to indict lecturers for their inability to lecture and teach, and student groups in the universities have on numerous occasions recorded their dissatisfaction with the lecture system and made recommendations for amending it. A very familiar recommendation is that lectures notes should be distributed and thereby make unnecessary a number of lectures which consist of mere dictation. It is surely reasonable that no lecture course should consist of material which the students themselves could obtain direct from accessible books unless, of course, the material would not be intelligible without clarification. On the other hand, the taking of notes is a most valuable part of university training. To be able to summarise the main points of a lecture is an achievement of the greatest importance. Sir Oliver Lodge was of opinion

" that a good course of lectures organises knowledge—which otherwise would be miscellaneous—systematising it and embedding it thoroughly into one's system so that thereafter it is known, not by effort of memory but as part of oneself ".

The scope of lectures

I have often wondered what the critics of the lecture system really expect from lectures. It is by no means unusual for students to maintain that they have derived much more benefit from perusing some well-known text-book than from attendance at certain lecture courses. Possibly this is so in particular cases. Yet it is by no means the whole story. Bruce Truscot, in his " First Year at the University", sums up the situation admirably. " A lecture . . . may confine itself to material which can be found in one book and yet give a bird's-eye view of the book which only a man with a trained mind could compose. It may be a masterpiece of simplification . . . it may remain an abiding memory because of the indefinable quality which the personality of a great man can infuse into the text-book's most humdrum facts." An important feature of any good course of lectures is that it gives a balanced picture of the subject. Actually the student always tends—quite naturally—to concentrate on those aspects of a subject which appeal more strongly to him. This is well illustrated in my own subject of chemistry. It is unusual for a man to find the study of inorganic, physical and organic chemistry equally satisfying, but it is vital that he should be knowledgeable on all aspects of chemistry if he aspires to be a competent chemist. The need for equally good lectures on every division of a subject is obvious. We are all familiar with the undergraduate whose deep interest in some particular field of study has been aroused by a gifted teacher. Alas ! we know, too, of cases where a dull and tedious lecturer has had exactly the opposite effect.

A friend of mine began his course of lectures by telling his pupils that he would give them guidance in their reading and could assure them that the material of his lectures was up-to-date. This introduces an important matter—the relation of research and teaching in the university. In the nineteenth century there was a prolonged controversy as to whether the chief function of the university staff was to teach or to research. To-day it is generally agreed that a university teacher's duty is to teach, to train advanced workers,

and to do advanced work himself. It is desirable, therefore, not to overstress the teaching function. In most faculties of science it will be conceded that research holds pride of place in the activities of young members of staff, but it is also true that many older lecturers are inclined to give research only secondary importance. Bruce Truscot maintained that neither at Oxbridge nor Redbrick is the amount of research in the faculties of art, by teachers or by graduate students, approaching what it could be. How far this is justified I cannot say, but I do know there has been dissent from Truscot's view. Nevertheless, it will generally be agreed that the spirit of research must permeate university teaching and that it will be impossible to attain a higher standard of effective teaching without a healthy research background. The University Grants Committee in the Report quite rightly reminds readers of certain dangers which may result from too exclusive an emphasis on the research function. The Committee's statement reads as follows: "We are not sure to what extent there is justification for the belief entertained by some members of junior staff that the only credential for academic promotion is a long list of published research work. There are, of course, many considerations of a more personal kind (for instance, success as a teacher and a sympathetic interest in the student life of the community) which are highly relevant to the assessment of a young lecturer at the outset of an academic career." In the science faculties of many universities I am sure there is substantial evidence to support the belief that promotion depends solely on success as a research worker. This means that in such university centres a young member of staff feels that he is penalising himself if he gives time and thought to his teaching duties. The Committee of Vice-Chancellors and Principals may well keep this aspect of the lecturing problem in mind when with the University Grants Committee they are looking into the question of raising the standard of university teaching. In the University of London it may be well to recall that in nominating any person for appointment as university professor or reader the Board of Advisors shall have regard to:—

(i) his contribution by research to the advancement of science or learning;

(ii) his powers as a teacher;

(iii) generally his eminence in his subject or in his profession.

At various times university students have expressed themselves forcibly about the defects of the lecture system and there will be considerable sympathy with the man who is a unit in a class of a couple of hundred undergraduates and knows his lecturer only by sight. In the older universities the pupil has a supervisor who is a specialist in a subject which the student is reading. This supervisor arranges a period of one hour per week when he supervises the work of the student on the following lines: (*a*) discusses the current week's lectures, etc., and deals with any difficulties, (*b*) provides references for further reading, (*c*) tests the student's understanding of his work by oral question and answer, (*d*) sets written work, e.g., essays and examination questions to be prepared for the next meeting, (*e*) in particular cases, e.g., botany, may take the student out for field work. In an undergraduate's early years at Oxbridge he may attend a supervisor in company with a number of other students (not more than six), but in his later years he is almost invariably supervised alone. There seems little doubt that some system of this kind should go hand in hand with the formal lecturing even when it is raised to the highest level. A system of this kind is operating at a number of university centres but apparently not to the satisfaction of every type of student. Recently the general arts students at one university expressed considerable dissatisfaction with the working of their tutorial system. These general students felt that they had no idea how they stood, either in relation to each of their three subjects (or four in the first year) or how they should distribute their efforts between these subjects. Accordingly, they requested the authorities to consider the following measures:—

(i) That the General Tutor should meet each one of his students for at least half-an-hour a term.

(ii) That each department should give each general student at least one individual tutorial a term.

This constitutes a modest request but with present staffing it may not be easy to implement.

The statement of the University Grants Committee that the lecture must continue to be the most important and the commonest means of communication between teacher and his pupils tends to under-estimate the influence of the laboratory and the workshop teaching in the case of the experimental and applied sciences. It is clear that, in the laboratory and in the workshop, students and staff

become well-known to each other and this friendly contact affords constant opportunities for the discussion of problems whether they arise in the lecture room or outside of it. There is no doubt that in recent years the great increase in the number of science students has meant that in the overcrowded laboratories and workshops there has been less opportunity than formerly for discussion between staff and students, and this is to be deplored.

Adjuncts to lectures

In the faculty of science the lecturer can have the assistance of fascinating experiments to illustrate his remarks. This is especially true in the introductory courses. In many schools, during the war period and after it, science masters found it almost impossible to get suitable apparatus for lecture demonstration so that in many cases their pupils had not the opportunity to see the experimental verification of many scientific facts. This makes it particularly important that at the universities where experimental demonstrations can be arranged in connection with lectures, this should be done. Some idea of the possibilities in this direction can be seen at the Royal Institution, London, where immense trouble is taken to show fascinating experiments in connection with the scientific lectures.

I have mentioned the importance of apparatus, laboratories and workshops in the teaching of the science student. Humanist subjects likewise cannot be taught simply in a lecture room. Books and periodicals are as essential to the arts man as apparatus is to the scientist. To both scientist and arts man, a library is indispensable and in these days of expensive text-books the undergraduate and the postgraduate student cannot be expected to buy as many books as formerly. This means a new conception of the part a university library has to play in the success of university teaching.

I hope these remarks, whilst calling for "The Apology of a Professor", do not leave the impression that I share the pessimism of Stephen Leacock's famous character. . . . "But then, after all, if the mind as a speculative instrument has gone bankrupt, if learning, instead of meaning a mind full of thought, means only a bellyful of fact, one is brought to a full stop, standing among the littered debris of an ideal that has passed away."

V. LECTURING—ENGLISH AND AMERICAN

By T. Mendenhall

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On both sides of the Atlantic the lecture as a teaching device in higher education is enjoying a new burst of popularity. The reasons are largely the same: swollen post-war enrolments and depleted faculties for handling them. Since in the United States lectures have traditionally formed a much more extensive and vital part of college education than in England, an American teacher may be permitted to appraise our experience and to suggest some of its lessons for this country. That lectures play a very different role in the two systems must never be forgotten. In England the combination of the lecture and some variation of the tutorial has long served to prepare the student for a series of final, set papers. A college programme in the great majority of American universities consists in completing satisfactorily a certain number of subjects—usually five a year—for four years. Within these separate courses (each of which would have its own examination and final mark), lecturing is the usual method of instruction. Attendance, if not required, is discreetly assured by the instructor making the content of his lectures essential to success in the course. First-year or freshman courses are often taught in discussion classes of 20 to 30 students; upperclassmen may have some seminar or tutorial work in their major subject; and most science courses include a laboratory as well as lecture. But two-thirds or more of all the instruction most undergraduates receive in American universities is in large lecture courses, running from a modest 100 to as high as 1,500 members in the post-war deluge.

The peculiar advantages of the lecture need no elaboration. Ideally, new material, fresh interpretations, the fascination of a great mind at work, all these opportunities which a lecture allows the greatest possible number of students to enjoy are as compelling to-day as when Abélard first emptied his rivals' musty halls by St. Geneviève. To-day, amid the vast extensions of knowledge, the lecture can also provide an introductory survey or a useful arrangement for study. To the harassed administrator it offers other advantages; lecturing is the cheapest form of education and this parsimony can be rationalised, in these days of mammoth enrolments, by arguing that it would be impossible to find a first-

class faculty to teach such numbers in any other way. The student, as he gazes at the great man half a block away and meets him through the intermediary of a loud speaker, can comfort himself that he is getting nothing but the best.

Many of the above justifications of the lecture method are open to serious challenge. The speed and cheapness of the printing press have eliminated much of the uniqueness of the lecturer's function. Admittedly there are still materials which cannot be presented in any other way and the well-ordered survey by a mature scholar remains an excellent introduction to a subject, but for the lecturer to repeat what the students could and should read before class is hardly the best use of his time. The older argument that the lecture carried the students to the frontiers of the subject no longer holds in many fields where the introductory student cannot expect to pass beyond the well-charted hinterland. Finally, lectures have become educationally suspect. In so far as the student remains passive, contributing nothing but his physical presence, there is no chance for that interplay of mind on mind, that dialectic which starts learning.

This brief analysis should demonstrate the suspicion surrounding the lecture in academic America. There is no movement to do away with them (the college bursars would soon prevent such a campaign !), but the more thoughtful instructors are convinced that the lecture has definite limits to its use. Some subjects, or parts of subjects, or certain stages in the four-year programme where breadth of survey is desired will always demand the lecture approach. But any college which allows the lecture to become the only method of instruction will thereby turn itself into an academic factory. Other devices—the tutorial, the seminar, the discussion class—are much better at giving that all-essential intellectual exercise and self-discipline. Furthermore, since the lecture will continue to be used, it must be done well. Great lecturers are also great showmen, with a burning desire to share their knowledge. Not all can achieve these heights, but competent lecturing demands at least intelligent appreciation of the task involved. The need for planning and organisation, the use of prepared supplementary materials—illustrations, questions, rival points of view, appropriate visual aids, loud speakers where required, and careful attention to the vital minutiæ of the lecturer's art (the sense of pace and proportion, devices to hold interest, the proper use of illustration and even humour, if

it is good), all these are acquired skills which can make even a mass lecture an educational as well as a memorable experience.

The lessons here for English higher education are not easy to draw. To an outsider, at least, lecturing in this country seems never to have achieved that exalted, central eminence that it has occupied in the continental universities. The tutorial has long been considered the great English contribution to higher education; even in the newer universities, if not completely realised on the scale which prevails at Oxford and Cambridge, it still furnished the ideal. As a result, lecturing has occupied an anomalous, if not inferior position. The offerings have too often represented the whims of the performers rather than any coherent plan; frequently the absence of any requirement, or, indeed, any other incentive for attendance save intellectual curiosity and the general tendency to exclude performance as a lecturer from all appraisals of an instructor's professional competence have sheltered English lecturing from the healthy winds of competition. The result is that, while there are many outstanding lectures to be heard in English universities, the general standard or average performance seems hardly as high as it should be.

Any formula for improvement must begin with the same precept as in America; lecturing is an acquired skill, well worth serious study. Though admittedly no substitute for knowledge or enthusiasm, such devices should not be deliberately ignored as has sometimes been true with English academics. Even in large lectures, carefully planned questions, prepared illustrative materials, or readings intended to bring out rival points of view can do much to make the student feel he is participating in a joint intellectual adventure rather than merely serving as a receptacle for the storing of pre-digested materials. Not everyone can lecture well and many had best be left to discussion class or tutorial work, where their influence, admittedly on a smaller group, would be infinitely more effective. In many areas of knowledge and stages of learning the great lecturer, skilled at vast syntheses and discerning interpretation, but possibly no great figure as a researcher in the field, will be preferred to the more distinguished scholar who is incapable of (or uninterested in) presenting publicly his work. A tradition of fine lecturing within a department or university, based on a real appreciation of the problems involved, can do much to teach and inspire the beginning instructor.

The different uses of the lecture should also be explored. English

lecturers have always excelled Americans in one important historic function: making available the fruits of their research to the young student and general public. But the general survey of the field seems less well done over here and the great synthesis, employing comparative materials from related disciplines, or the brilliant reinterpretation of old evidence, seems rarer than in America. Such lectures, particularly at the undergraduate level, well done, can do so much to challenge the beginning student with the panorama of past accomplishment and present prospects in the field. But if the lecture, inspired with new skill and new purpose, is to have a renaissance in English university education, profit by the devastating American example and do not let it monopolise the educational process.

There is, however, a middle ground between the mass lecture and the individual tutorial which, to the American visitor, would seem to deserve more widespread use in England. The discussion class, numbering from 15 to 30 students, can be employed separately or in conjunction with the lecture, affords the student a much more active part in the educational process, yet is not so costly to administer as the traditional English tutorial, either in terms of trained staff or per-pupil expense. Too often the tutorial is still used, at real waste of teaching time and energy, where a discussion class would cover more ground and obtain the same result. Essays can still be written, read by the whole class beforehand (surely the reading of the essay aloud in tutorial is an indefensible waste of time !), and subjected in class to the merciless criticism of students as well as instructor. Other materials lend themselves better to group study and discussion where the instructor, by skilfully playing on the different temperaments and intellects in the class, can obtain an infinitely more orchestrated and varied investigation of the problem than is ever possible in the lone tutorial. The ideal organisation of university instruction should include lecture, discussion class, and tutorial, in just proportion and sequence, each taking over where its particular techniques can most profitably be exploited, and all combining to employ the faculty where they are most effective. Together they can afford the student every type of intellectual experience—the prospect of a trained mind working and ranging over the field, the chance to sharpen his wits against his fellows over a common body of knowledge, and the opportunity for individual, even creative work on his own responsibility.

BROADER EDUCATION IN A DEPARTMENT OF APPLIED SCIENCE

By A. Tustin

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In the Department of Electrical Engineering of Birmingham University, certain simple innovations have been made during the last three years with the object of stimulating the personal development of students and broadening their interests. Nothing spectacular or novel has been attempted, but when more radical developments must wait on building priorities and economic normality, simple means that may be used by any department at any time may merit attention.

These innovations centre round the introduction of periods of an hour each week throughout the course for group discussions on general topics. Associated with this is the writing of essays. A small departmental library of books about education, economics, psychology and other non-professional subjects has been set up for use in connection with these activities.

Discussion groups appear to be successful and effective as a form of broader education, and a chief object of this note is to point out the many ways in which they may provide what is needed in an Applied Science department, pending that probably very distant day when Halls of Residence, tutorial methods, and more radical changes in the educational schemes may make them less necessary.

The nature of the needs of engineering students for "general education"

Until three years ago, the writer of this note was an electrical engineer in a large manufacturing concern, and over many years directed the work of a considerable number of young graduates. For this reason he has a clear impression of the factors in a man's equipment and personality that make him effective in his profession and an asset to industrial and social progress. This impression is not only a personal one. Responsible people in industry, who have expressed their opinion, all concur in a generally similar view.

The need is for a broadly educated man. Detailed expert knowledge is not expected in a new graduate. Engineering is subdivided

into a great number of specialised branches. It is not a function of the university, even if it were competent to do so, to provide the immense range of detailed knowledge needed for work in any one such field. The engineer must learn his craft during the ten years or so between leaving the university and attaining full personal responsibility, and in this world of kaleidescopic change, he must continue to learn throughout his working life.

What is needed and constantly sought for is not a higher level of technical knowledge. The precise level is almost irrelevant. It is rather a certain calibre or quality of man. Before everything else it is a potential ability to deal with people, and that combination of commonsense, judgment, stability and clarity of purpose that makes a man a naturally accepted leader of the group in which he finds himself. Secondly, he needs inherent intelligence, a good grasp of first principles, and willingness to learn.

This sort of thing has, of course, been said, in this *Quarterly* and elsewhere, scores of times ; and it has very properly been added that a sixth form devoted to cramming for scholarship examinations, followed by intensive technical tuition at the university for three or four years does little to develop such qualities. Of course, even ' Redbrick ' does offer something more, but the results are poor by the standards either of need or of possibility. Men on graduation are too often deficient in breadth of knowledge, in strength of interests, in social awareness, in maturity and stability of personality, and in sensitivity and the understanding of people.

The kind of activities that are advocated to supplement professional tuition

There is almost universal agreement that there is a need to broaden in some way the education of the Applied Science student, but there are few ideas and still less agreement as to how this should be done. The way to a solution must be by a clear perception of exactly what is required. A good deal of the conflict of views and the resulting absence of action arises because the term broader education means quite different things to different kinds of people. It generally means giving the student something which the particular speaker has found of value in his own life. It may be something, like music, that opens a door to delights, or something, like bird-watching, that provides an entrancing hobby, or it may be, essentially, a religion, or a social faith, or whatever has served the particular

prescriber as a pillar or a scaffolding of his own life, and which he therefore perceives to have value for others.

These prescriptions are all different, but mostly good; and if everyone would recognise that variety is the spice of life provision might be made for most of them, without so much energy being dissipated in clouds of words about which is most necessary.

There are, however, other ways of defining the need than this enthusiasm for one's particular personal values. The Harvard Report, for example, proposes to consider a man's equipment " as a responsible human being and a citizen ", which is admirable so long as it does not mean the inculcation of the social ideas and values of the academic mind of the day, which might well at certain times be dead or dying.

It seems to the writer that all these formulations miss an essential psychological fact, namely, that the full development of the individual requires that he should discover and build up for himself a pattern of attitudes and values, springing from his own inner vitality, not fitted like a ready-made suit provided by a well-intentioned older generation. Perhaps this is more true of the present era than it usually is, for the present adult world cannot present the oncoming generation with a philosophy adequate to its needs, since it has none that suffices for its own.

The university's function, on this view, is to provide a richly nourishing mental environment and the opportunity and stimulus for mental exploration and spiritual growth, in the expectation that each generation, in the light of contemporary knowledge, will formulate its values and purposes according to its own needs.

Knowledge is not irrelevant to this process, but comparatively few facts and discoveries are relevant to the main issues. It is essential that these essential facts should be made available. They are not, however, included within the field of electrical engineering. There is a need for a quite limited amount of acquaintance with biology, psychology, history and economics, because these fields do include facts that are relevant to general understanding. The problem is, however, not essentially one of imparting knowledge. What a man desires and strives for is even more important than what he knows. Knowledge is a mere tool. Wisdom differs from knowledge. ' Personality ' concerns the organisation of motives and the development of sensibilities, and it is these which are the essential core of education.

The university's relationship to the development of personality

There are, of course, those who say that personality cannot be affected by any educational contrivance. It just grows, like the shape of the nose. There are others who say that it is determined in infancy, or that it is the concern only of the schools. Whatever partial truth there may be in these views, it is difficult to doubt that the university years are a formative period, in which normal development requires a deepening of emotional experience and some progress in the conscious formulation of purposes and values. The need for which the university must provide is for the discovery by the individual, for himself, of a sufficiently consistent set of attitudes, values, and beliefs, such as will harmonise the conflicts of his motives, canalise his energies, and give him self-confidence, security and clarity of purpose. For a professional engineer such a pattern of motivations is not likely to be adequate unless a strong sense of the social significance and responsibility of his work form part of the pattern.

Perhaps it is natural that the first impulse of many university teachers, seeking to provide, along with professional training, the environment in which this process of spiritual fermentation will be ensured, is in terms of an extension of the curriculum to include Arts subjects. American technological education has accepted this impulse. It is an advance, but there may be better ways.

Does anyone really believe that the addition of an hour or two of compulsory attendance at lectures in social history or English literature will remedy the shortcomings of the training of engineers? If it were so obvious, the step would already have been taken. There *is* a place for short courses of lectures on non-professional topics, but they would not necessarily provide the essential core of what is needed, and might very readily become merely an extra burden of assimilation on an already overloaded mental digestion.

The value of discussion groups as an element in broader education

The idea of groups of students meeting regularly, in what would normally be class time, to discuss what interests them, with help from the staff, provides an alternative to supplementary lectures that has many advantages.

Such groups have been arranged in the Department of Electrical

Engineering at Birmingham, over the last several years, and a variety of different ways of running them have been tried.

A brief factual description will first be given of the ways in which groups have been organised, and the question will then be discussed of what such groups may contribute to general education, and how such activities might be made a valuable part, and even the king-pin, of a scheme that might remedy the worst deficiencies of present practice.

Two main types of group have been tried. In each case the basis is, unavoidably, the 'year' of thirty students. Each session, one group of thirty has met as a single large group. In all other cases the large group has broken up, for purposes of discussion, into smaller groups of eight or ten, meeting only occasionally as a single group to hear a lecture or to pool ideas.

Considering first the more usual plan of small groups, the procedure has been to arrange a first meeting of all thirty students for the purpose of finding out what they would like to discuss, and what knowledge they want. This involves the basic question of what topics are important. Usually a great variety of suggestions arise, and finally a topic is selected for, say, a term's work.

Some of the topics that groups have selected have been, for example, "the causes of poverty," "education," "the future of man," and "human nature." It is a very valuable and novel activity for students to ask themselves what they want to find out. To be confronted with this question (in this era of sample examination questions) may be the beginning of a new outlook on their own education. Several times, groups have chosen the topic of "education" for discussion, and this is an excellent topic for the same sort of reasons, especially for a first-year group. One group, who were rather irresponsive, were galvanised into interest by agreement to discuss "how to get through examinations"—which proved an excellent starting point, leading to the discussion of the whole educational problem.

The topic which is selected does not matter. Preferably it should be the students' own choice, and it should be broad and not too technical, but in practice almost any topic raises fundamental issues of values and ethics, and these problems arise with remarkable regularity, whatever the starting point.

Sometimes the choice of topic is followed in the succeeding week by a talk to the whole group by a member of the staff on the chosen

topic. This is desirable to give discussion a good start. The talk should raise the issues, stimulate interest, indicate sources of information and, perhaps, in the case of a complex subject, suggest some lines of attack. It is entirely legitimate that it should include factual information, but not opinions.

The complete group, from then on, divides up into smaller groups. Usually, but not invariably, a member of staff works with each group. A well-started group will usually carry on happily over a number of weeks, but discussion will possibly peter out unless re-stimulated by staff participation and further occasional lectures. From time to time the smaller groups meet all together, for an exchange of ideas.

The relationship of discussion to factual information

There is, of course, a general lack of factual information and a curious unanimity in ignorance on particular topics. (It was found, for example, that not one of a group of twenty-eight about to graduate had any idea what Lord Keynes had contributed to economic ideas.) It might be thought that this would result in students merely exchanging each other's ignorance. It is possible, however, to use this situation to provide certain essential factual information in a way that makes it easily assimilated, because the right questions have first been asked. It is possible to get a group, faced with a need for factual information, to put the series of questions on paper which they would like to put to an economist, a social historian, a psychologist or whatever specialist is appropriate. It is a virtue of the modern university that such specialists are at hand, and if they are asked they invariably welcome the opportunity to meet a group and to discuss with them the questions that the group have formulated. This is surely better " pedagogics " than the imposition of a " course " on the topics in question before the sense of need for such knowledge has arisen. Usually, also, individual students undertake to introduce the discussion each week, and they read up and produce a good deal of factual information.

The use of larger groups

The second method that has been used is to keep the whole group of about thirty students together all the time. So large a group makes great demands on the personality of the member of staff who leads it. It has been possible at Birmingham only because of the participation in these activities of Professor L. J. Russell,

Professor of Philosophy in the University, who for the three past years has led the third-year Electrical Engineering students as a group in a study of "the impact of science on society". The method which he has used is that each week one or two students prepare an opening contribution to the topic in hand, and Professor Russell interjects talks and comments as needed. He has the long experience, the fund of knowledge and the sympathy with the students' outlook to be able to keep discussion in so large a group lively and effective, with the students almost all thoroughly "involved" and interested. This is not easy to do, and the large group is only practicable, if a group-leader of exceptional calibre is available.

The direct participation of a professor of philosophy in the education of students of Electrical Engineering represents a conception of the functions of the Arts faculty in a modern university different from that usually found. Would it not be possible for the Arts departments to inter-penetrate into every other department in just this sort of way?

Some observations on the operation and results of these discussion groups

The students are unanimous that they "get something" from these activities. They often put it that "they get to know each other", and they want to continue once such groups are well started. The discussions seem to help to weld the "year" together, and produce an extremely good atmosphere of friendship and mutual helpfulness.

Invariably discussion arises on basic problems of values and ethics. The approach to these problems through discussion is felt to be extraordinarily valuable, because when such matters are hammered out to a conclusion it becomes clear how certain sorts of disagreement spring from individual differences of choice and response, and are not reconcilable by the intellect. In such discussion, men learn to understand themselves and their fellows and become aware of the non-rational substratum of all opinion. They often find that what they feel is shared by others, and where it is not shared they learn to understand and appreciate the honestly expressed feeling of others.

The discussions started in the discussion hours go on in refectory and laboratory and the bus home, and these hours have a multiplied value. The time devoted to discussion groups may quite well be

recovered in the improvement of the background to professional studies, because the students begin, to use their own jargon, " to see what it is all in aid of ". Effective learning cannot go on as a sequence of chores, but must spring from some sense of its significance and purpose, and broad views of the kind that develop in discussions on topics like " the impact of science on society " may give technical study a new significance.

Apart from their direct effects, such activities are a constant reminder that the university is concerned with more than industrial training. The absence of anything of the kind silently asserts the contrary.

Finally, discussion groups are of great value in helping the staff to know the students, and if the writer may speak of his own experience, they may also educate those who lead them.

Such activities may be either compulsory or optional. It is not satisfactory to hold discussion groups on the basis that participants drop in when they feel like doing so, but compulsion removes the very desirable condition that students should have the fullest possible sense of responsibility for their own education. If it is left to the individual, the result may be that just those under-interested or over-anxious students who would most benefit fail to take part. One solution is to point out these facts and get the group to undertake all to co-operate for a trial, say, for a term, on the understanding that it will continue only so long as a substantial majority wish it to do so. At Birmingham discussion groups have been discontinued in the summer terms, because of the approach of examinations.

The scheme for essay-writing

A defect of undergraduate education, which is not corrected by discussion-group activities, is its failure to develop the ability for self-expression in writing. Most Applied Science students are unable at the time of graduation to write a technical report or thesis which is well-arranged, lucid, and exact in its use of words. The need must in part be met by introducing written work in the technical part of the courses.

An attempt to contribute to a solution, and at the same time to broaden the students' interests, has been made by encouraging (but not requiring) each student to write one fairly long essay during each session (on any subject except Electrical Engineering). A prize is given in each ' year ' for the best essay.

The results have been good in respect of the quality of the essays

produced, but somewhat disappointing in respect of the number of students who fail to find time to write them.

The possible place of discussion groups and associated activities in a broader scheme for general education

An advantage of the activities that have been described is that they may be started in any department in which some member of staff can be found who is willing to give the time and personal effort required to make a trial of them.

Separate and unco-ordinated departmental efforts of this kind could, however, be greatly assisted by, in particular, two measures which are outside the scope of individual departments.

The first has already been mentioned, and lies in the recognition by other Faculties, particularly of the Arts Faculty, of a function for them in the university that may be described as penetration into other departments. In the case of the experiments just described unstinted encouragement and help has been given whenever it has been asked for, but if such activities become general the call on other departments would be considerable, and the nature and form of the contributions that could be made would need to be considered and planned.

A second measure is one which it is intended to put into operation at Birmingham University next session. During one hour each week substantially all students will be freed from lectures and laboratories, and at these hours a variety of university lectures on general topics will be given. Concerts and other activities will also be arranged in these free periods. To lessen the incidence of this free hour on particular courses, the free hour will be on a different day of the week in successive weeks. The free hour will be adjacent to the mid-day interval. If it were at the end of the day students would probably be tempted to go home.

It is evident that considerable economy is possible by a scheme of this kind in providing a background of lectures by outstanding lecturers which may be made use of for discussion-group activities within the various departments.

It appears to the writer that a scheme of this kind, combined with support from the non-technical departments, and with active discussion groups or something equivalent within every department, could go a long way towards remedying the evils of over-specialisation on technical subjects about which so much has been written and so little done.

REFORMS IN CONTEMPORARY FRENCH EDUCATION

I. At the Secondary Stage *

By P. Mansell Jones

Professor of French and Romance Philology, University of Wales

State education in France is a centralised system, periodically revised, about which it would be impossible to say very much in a brief space, especially if one knew the subject thoroughly and in all its ramifying connections—a claim the present writer is far from being able to make. Since the Napoleonic era, which transformed the system, its foundations and framework have been thought out as a whole, until now the Ministry of National Education plays a direct part in fixing and ordering the scheme from the base upwards. A vast administrative machine involved in making an educational scheme work is bound to exert a powerful external effect not only on the organisation but also on the quality of the education administered, and the danger of administrative domination is no doubt greater in France than it is even in contemporary Britain. A unified system obviously increases the directive pressure ; the French teacher feels this pressure sometimes as a support, sometimes as an obstruction, and he frequently protests. But having admitted this, I must add that such generalities are misleading without certain reservations. The French system is directed and controlled from above, but it is by no means so averse from initiative as we in this country might imagine. What is to prevent the heads of such a system themselves from showing initiative ? The role of the benevolent despot is ready for them to adopt ; they can impose wise changes for the good of the majority and they can impose such changes broadly and quickly. Or again, if they wish they can directly encourage sporadic experiments. Indeed, it is a part of educational policy in France to leave considerable scope for individual action within the general framework. French teachers, it seems to me, have more elbow room for personal choice and action than the hieratical aspect of their system would lead us to expect. The teaching especially in the *lycées* is of a high order, involving much conscientious preparation and carrying the pupils to intellectual levels of a more mature grade than is generally achieved in corresponding schools in our system. Of this advantage and of certain

* A subsequent article will deal with the *Baccalauréat* and the University.

other differences between the two systems the French are well aware. Indeed, those who know our schools and their products (and the knowledge of what they are worth becomes increasingly prevalent in France) seem convinced that their own standards are superior, while they frankly admire those social and material assets which add superior breadth and freedom to our conception and practice.

The French system : dissidents, critics and reformers

In considering the French system we must remember that while the word " university " is used as we use it for the highest stage and centre of organised education, it stands as well in an inclusive sense for the entire organisation and especially for that section of the national scheme which is located in a region dominated by a specific university. The *Recteur* or principal is an administrator and has under his jurisdiction the whole range of educational establishments in his district. They are subdivided, as in our system, into the primary, officially called the " premier degré "; the secondary or " second degré "; and the " supérieur ", which corresponds to what we call the university grade.

Beside these normal subdivisions, there is in France a division of a different kind which cuts across the entire field of educational operations. Outside the State system there exists a considerable number of educational establishments which constitute what is called " l'éducation libre "—a category free from central control and subvention. It covers forms of private and denominational institutions similar to those found in our country, and of which the Catholic and Protestant schools and institutes are the chief examples. Some of them apparently are wealthy and are able to provide a good general education of a certain type; and they are all kept going in milieux less alien or favourable than indifferent by the devoted efforts of conscious sectarians.*

My objective in going to France was to discover what changes had been made since the occupation at the university level. But as that level depends upon the secondary, it was clearly part of my task to enquire about reforms at the lower stage as well. Actually

* About this side of education in France I have much curiosity but little information. M. Gustave Monod, Director of Secondary Education, calculates the school population at the secondary stage as being composed of 53 per cent. in the 'State' category and 47 per cent. in the 'free' category. (*Les Nouvelles Littéraires*, September 29th, 1949.) In the same issue it was suggested that, if free primary schools were suppressed, it would mean a loss of 50 per cent. of the total schools and teachers at that grade.

there was no need to pursue enquiries far. From my first glance at a French newspaper I found myself involved in a world of debate and of anxious, if not atrabilious, discussion. Not that this has produced anything comparable to what I will call our contemporary literature of university reform. The main discussions were being conducted not in books but in the columns of the popular press, always seriously, sometimes with more than a touch of irony or with illustrations in which every picture told its story. Such discussions as thrive since the war in France, Britain, Germany and Spain, not to mention the United States, are so far, I suggest, the most encouraging aspects of modern educational reform. But in France, at least, practical experiments are being initiated at the secondary stage, while one big change has swept over the universities. None of these changes is an educational reform of world-shaking significance or of profound originality. The French reformers themselves are content to make no such claim; much of what they are attempting they regard as experimental adaptation and little of it would be novel for us, at least in theory. On the other hand, the energy and enthusiasm with which new ideas are being adapted, despite grave obstacles and disagreements, is something we should admire and imitate. For though most of us have heard for years of certain innovations in pedagogical practice, I, at least, have had to go to France to see any of them in operation.

Experiment and the cash nexus

Before we proceed, let us ask how the French authorities are tackling their problem of over-population? Pressing as yet only in the big towns, the rate of increase inspires grave anxieties for conditions five years hence. With so many buildings destroyed or decayed, much construction is required and the demand is heard at every stage. "If the State gave us 100 milliards," says one authority, "we should know what to do with them." The Dean of Science Faculties complains that one Parisian centre planned to hold 768 students has to accommodate 3,000. The Minister himself tries to reassure everyone by contrasting the allocation of four milliards of francs in 1948 with that of twelve milliards in 1949, while the secretary of the Primary Teachers' Union suggests that the indispensable millions should come from the budget on one hand and on the other from local and regional loans.*

* *Les Nouvelles Littéraires*, loc. cit.

After these preliminaries, let us now look cursorily at some of the main examples of contemporary reform in France. One of the two most striking experiments has been applied at the secondary grade. The lower forms in certain selected schools have been reorganised along new lines and are called the *classes nouvelles*. Note that these classes are being treated as *experimental* and that the innovation is not being imposed on all schools. Organised in favourable districts only, they are, I was told by one of the leading organisers, meeting with much success but also with opposition and obstruction.* Lack of money impedes progress as indeed it threatens all educational and scientific developments in France. There are too few teachers prepared to undertake the new modes and still fewer buildings appropriate to the purpose. None the less, 200 such classes were created in 1945 ; 200 more in 1946 and 150 in the following year. The present total is about 750. They are distributed all over France, most of them in the region of Paris. I repeat that they are run by enthusiasts who admit that they are not popular with all teachers; they also admit the need for re-adaptation, as they are applying methods which are largely of foreign origination.

Any discussion of the *classes nouvelles* must be related to a Commission on education which was appointed to sit in 1944 under the presidency of the great scientist, Paul Langevin. The late Professor Langevin, whose scientific work was interrupted during the occupation, turned his attention to educational problems inspired mainly by his concern for the offspring of poor parents. The Commission over which he presided was expected to report on projects of reform first to the Minister of National Education, then to the Council of the University, and finally to Parliament before its recommendations could be put into execution. On the death of Langevin in 1947 the work was carried on under Professor Wallon and was completed in June 1949 in the form of a report presented to the Ministry. This is, I believe, the third Commission on French education to have sat since 1902, when the Ribot report was published. The reforms which followed in 1904 were recently described as simply theoretical and those made by the second Commission under Jean Zay showed little fundamental difference.

Two views I found prevalent about the results of the Langevin

* My initiation to the notion and practice of the *classes nouvelles* I owe to Mme Rocher, one of the leading teachers of English, whose name will be known to many interested in the teaching of French in this country.

Commission. On the one hand, it was hinted that Langevin's well-known communistic leanings had gone some way to invalidate the reception of his reforms. For the university, the Commission was already a dead letter, the implication being that certain dramatic changes at the highest level, which I will describe later, owe nothing to Langevin's initiative. On the other hand, there can be little doubt that the report is an interesting document, conceived on new lines,* and that innovations like the *classes nouvelles* owe, not indeed their invention, but their practical stimulus to the findings of the Commission.

Sèvres transformed : from porcelain to pedagogy

Before coming to further French views on this experiment, I should, perhaps, attempt to describe some specimens of the new work which, along with other observers, I was privileged to see in somewhat special circumstances. It happened at Sèvres, the little town now an extension of Paris, which lies on the left bank of the Seine between the capital and St. Cloud. World-famous for its porcelain factory founded in the reign of Louis XIV, Sèvres has also been famous in educational circles for its Ecole Normale Supérieure des Jeunes Filles, which was housed in the old buildings when a new factory was erected on a neighbouring site. The buildings themselves date from the 17th century and have remained sedately handsome with their long rooms decorated in period style, their polished oak staircases, spacious court yards and gardens which retain an air of formality, the whole standing back from the main road to Versailles on a rise about half a mile from the river. The superior college for girls received notice to quit some years ago and is now established in Paris. But Sèvres is still the scene of a vigorous educational movement, no doubt smaller in scale but almost certainly wider in scope. There were great educationists in France in the 17th century, but for all their intensity and success neither Jesuit nor Jansenist could vie in spaciousness of aim with the experiment now being made at Sèvres.

The main purpose of this effort is defined in its name: *Centre International d'Etudes Pédagogiques.* Recognising the universality of contemporary educational problems, the institute is at once a kind of clearing-house for educational ideas and a *rendez-vous*

* A summary of the Langevin Commission Report will be given at the end of this series.

for experimentalists. " Exchanges et contacts ", a phrase I heard while there, might be its motto, and already its short life has been packed with numerous reunions between foreign and native teachers. Founded in 1945, the institute has been placed under the able direction of Mme Hattinguais. Its general aim, as the *directrice* defined it, is to give children a type of education *adapted to their needs in the time in which they live*. Its practical object is to make a selection among pedagogical ideas and to mingle original methods and exercises with those traditional to a region. Spontaneity is encouraged in the pupils and a great variety of exercises are applied. Wider use is made of the arts, especially music, drawing and pottery. Experiments of this kind are adapted at the secondary level to classes composed of not more than twenty-five children aged about fourteen years, thus making a coherent group; and the teachers meet frequently to discuss their pupils. Such principles and practices are characteristic of the new classes wherever they occur.

A special feature of the Sèvres institute is a type of exercise which attempts to interest French children of eleven in other children the wide world over. " Comment connaître et aimer les enfants du monde ? " The way that question is answered at Sèvres was disclosed when, after a light collation served in the courtyard behind the main building, we crossed to a classroom at the end of the garden. Here we were confronted with abundant specimens of children's work dominated by a vast map of the world, adorned—and this was the novel feature—with what looked like radiating tape-measures centred in Paris. Upon this panorama of oceans and continents a couple of youthful players could engage in a game of vast dimensions called the *Jeu d'Oie international*. It depended on calculating which would arrive first at the French capital from spots as distant as North America or Madagascar. Thinking of the effort it had cost me to come from Snowdonia to Sèvres, I was somewhat dashed to find that my journey corresponded to a few centimetres on the map. It was clear that to impress the players of this world-wide game, I should have to set out for Siberia or Alaska and to travel preferably by some primitive means. For other designs of a more elaborate character illustrated such themes as " En bateau à la decouverte du monde", by taking us back to the adventures of the Phœnicians, to the Greeks in their galleys or to vessels of Gallic or Roman types, bound no doubt for ultimate Thule. But the most convincing of the examples were the stories invented by the pupils

and written out clearly and correctly with original illustrations in water-colours. Turning from these I noticed a manuscript album of verses describing the childhood of the Belgian poet, Emile Verhaeren, copied from the originals and illustrated by one of the young artists with a naïve appropriateness.

Verdicts and vindications

As is usual in France, exposition and criticism precede and accompany practice, and the highest authorities have not been slow to express their views. M. Gabriel Monod, " créateur des classes nouvelles ", believes in the necessity of a pedagogy of orientation. The " active " method of education begins with observation in classes of twenty-five. The child should not be judged solely on the intellectual plane. An attempt should be made to discover all the human wealth he contains. What is important is that equal interest is taken in the weak as in the strong pupil. The weaker pupils may possess qualities hitherto ignored which, if developed, would enable them to be " orientated towards the concrete ". M. Monod considers the results of this experiment as so far unequal. While admitting that evaluations depend much on temperament, he is content to have received enthusiastic letters from parents. This is the guarded view of an authority. Actually, the whole of educational France appears to be divided on the point into a nucleus of fervour surrounded by varying degrees of interest or hostility. For the " active " methods are applicable to all grades. At the infant stage there are the *écoles maternelles.* Here, as the Director of primary education pointed out, the younger the child, the more successful the application of the method. The headmaster of a boys' school in Paris gave an exhilarating account of its use with children of from ten to fourteen. He, too, insisted on direct observation as the basis of operations and cited examples from the teaching of history. The children collect material to illustrate a period; each child must bring an observation, a text, a photograph. The teacher draws the conclusion and the results are remarkable. The whole syllabus has been worked through in this way by the end of the year. No more children gazing into space, droning texts they do not understand; now they are always ready with their comments. But are not the classes tumultuous?—No doubt each class is a buzz of activity. If silence resents, intelligence gains. The master is not a policeman but a friend. Last year, the headmaster confessed,

he had not to "rage" once and he gave no punishment. School no longer means drudgery for the pupil; it is the boy's life, his encouragement. In it he learns apprenticeship to solidarity. The work falls heavily on the shoulders of the teachers, but the *directeur* congratulated himself on having a brilliant team. The primary classes, he concluded, had been the first laboratories of the *classes nouvelles*. But more room was required—twice as much ! *

Varying degrees of approval or reservation come from other quarters. Many teachers believe in keeping to the tradition. As one of them told me, children can and should accept many of the foundations of knowledge in a dogmatic form; it would be a waste of time to expect them to discover everything for themselves. Others believe in working the old and the new methods together. Yet others consider that the experimental stage is passed and recommend the new methods as particularly good for modern languages; for the ancient languages a certain discretion gives better results. One secondary "head" put his finger on a weak spot. While the *baccalauréat* remains, the pupil will have to pass in the traditional manner; he does not feel better prepared to face his Latin paper for having been taught by modern methods. And, of course, the French parents, those dauntless critics and monitors of the education of their children, must be consulted. According to their mouthpiece, the President of the *Association des Parents d'Elèves de Lycées et Collèges*, they are concerned about buildings and the restriction of classes and are rather alarmed at all these novelties. The witty journalist commentator caps the lot: Have we the 10,000 Socrates to teach the 100,000 Pascals who would make the new classes a complete success ?

I must not give the impression that the final verdict is either negative or ironical. The Minister of National Education concludes in this way. The new are not opposed to the traditional methods; they are intended not to supplant but to complement them. Being "active" methods applied to the *milieu concret* in which the child lives, they permit the cultivation of types of intelligence which, for being rebellious to abstractions, are none the less capable of enrichment.

* *Les Nouvelles Littéraires*, loc. cit.

COLONIAL UNIVERSITY EDUCATION

By Walter Adams

Secretary, Inter-University Council for Higher Education in the Colonies

The recently published report of the Inter-University Council for Higher Education in the Colonies* records some substantial progress in university education. Three years ago† it was necessary to describe recommendations and proposals; now the recommendations are working practices and the proposals are living institutions. A new university (Malaya) and three new university colleges (West Indies, Gold Coast and Ibadan, Nigeria) have been established; another Colonial college (Makerere in East Africa) will probably achieve university college status shortly; in the Anglo-Egyptian Sudan, Gordon College has become a university college. The central machinery to assist the whole programme is fully established —the Inter-University Council itself, the Colonial University Grants Advisory Committee, and the scheme of special relationship with that " Imperial mother of universities " the University of London.

The speed of development

The speed of this development is remarkable. The reports of the original commissions (the Asquith, Irvine and Elliot) were published in June, 1945. The Inter-University Council, the creation of which was proposed by the Asquith Commission, held its first meeting nine months later. The three new university colleges, proposed by the Irvine and Elliot reports, are now in the middle of their second full teaching sessions. The Carr-Saunders commission report, recommending the fusion of Raffles College and the King Edward VII College of Medicine into a University of Malaya, was published in 1948; the picturesque ceremonies of the Foundation Day of the University took place on October 8th, 1949.

This rapid progress has been greatly helped by the active co-operation of the home universities, which added this work to the many other duties facing them in the post-war years. Their cooperation is proof of the acceptance of the Colonial institutions as members of the British university world, and this in itself has made it easier for the Imperial and local governments to grant them that full autonomy which has been a further cause of rapid growth.

* H.M.S.O., Cmd. 7801, October, 1949.

† UNIVERSITIES QUARTERLY, February, 1947, pages 145–53.

Mere speed is not a virtue. It may be that the rate at which they are developing involves some inefficiency. The pace, however, is not of their own choosing; it is imposed from outside by the political, economic and social changes in the Colonial communities. University development in the Colonies is a race against time. Two illustrations of these pace-setting factors are man-power needs and political changes.

Man-power needs

The development and welfare plans of the Colonies call for trained personnel in vast numbers. There is no chance of recruiting these specialists from overseas even if it were politically or financially defensible to do so. Recruitment to meet normal growth and replacements in some of the professional services is already inadequate; it cannot meet development demands unless it immediately taps new sources. Man-power budgets, published under the horrible titles of " Nigerianization " or " Sudanization " reports, give some estimate of the additional training facilities required to equip the emergent states with their governmental and social services. Such reports do not explicitly draw the deduction that something like administrative paralysis will follow if the trained personnel is not forthcoming.

The man-power reports scarcely touch on the needs for an educated middle-class outside government employment—in farming, in the distributive trades, in secondary industries, and so on—in order to prevent the development of an unbalanced society, divided too sharply into a bureaucracy and small professional *élite* on the one side and a semi-literate or illiterate peasantry and working class on the other. The man-power estimates can deal only with short periods ahead. They can scarcely take into account the fact that the demands increase progressively and are self-generating—for example, that the appointment of primary school-teachers produces in a few years an additional number of children clamouring for secondary education; that an increase of agricultural research workers involves an increase in the number of men trained in the skill of persuading the farming communities to apply the results of research; that the expansion of institutional health services creates an extra-institutional demand for midwives, dispensers, opticians and dental mechanics, and consequently for the means of training them.

The local universities are directly concerned with only a small part of these snow-balling demands for trained personnel and the trainers of personnel. The men and women they have to produce are usually those whose training lasts longest (such as doctors, veterinary officers and graduate school-teachers) and those on whose availability other plans must wait. One session's gain or delay in getting the local university's work started has immediate repercussions throughout the development of its region. In this period of multitudinous advance and readjustment in the Colonies, the size and urgency of the demands on the Colonial universities make the need for the home universities to double their student populations in ten years seem modest by comparison.

Political changes

A second illustration of the factors which are forcing the pace is provided by political and constitutional changes. The war was accompanied and followed by revolutionary modifications in the structure of the Empire—the secession of Burma, the independence of India and Pakistan, the acquisition of dominion status by Ceylon, the ending of the Palestine mandate, and unprecedentedly rapid alterations of the constitutions of the larger Colonial territories in the direction of self-government, The Richards constitution in Nigeria and the Burns constitution in the Gold Coast, which were regarded as radical advances, have scarcely begun to operate before they are to be replaced by still more advanced constitutions. Closer union in the West Indies and union in Malaya are steps towards further political changes, within the declared policy of the British Government of assisting the Colonies to achieve self-government within the Empire. Demands for a quickening of the process are intensified by a variety of outside influences—the racial policy of the South African Government, the discussions in the Trusteeship Council, the decision to grant independence to Libya.

It is difficult, however, to see how a community can achieve full nationhood if it does not have as one of its institutions a university of its own, and therefore has to depend on other countries for the higher direction of its research and the training of its intellectual leaders. The Colonial universities have many political contributions to make to their communities, such as the preservation and distillation of their cultures, the provision of centres of free responsible criticism, and the weakening of racial, tribal or other sectional

tendencies. Their work in this sphere is part of the process of developing self-government; it is both cause and effect, and the faster the political and constitutional changes occur, the more urgent is the political task of the universities.

Relation to overseas education of colonial students

The local universities and colleges at present deal with very small student numbers—Malta 293, Hong Kong 506, Malaya 601, West Indies 74, Ibadan 295, Gold Coast 120, Makerere 222, Gordon 229—a combined total of 2,340 students. Material factors such as lack of funds and lack of buildings and equipment will prevent very big increases in the next few years, even if other factors, such as a sufficient flow of qualified entrants from the secondary schools, allowed. The local institutions are at present a roughly equal complement to the overseas training of Colonial students, of whom there were in the 1948-49 session 3,629 in the United Kingdom, including 1,652 in the universities.

The home universities have *de facto*, and by 1951 will have *de jure*, raised their entrance requirements. Many Colonial students are admitted now on the minimum matriculation requirements. In the existing educational conditions in the Colonies, far fewer will be able to acquire the new minimum requirements. Apart from other objections, the setting of a lower entrance standard for Colonial students would force them, in the first difficult year or two, to try to maintain a pace set by their better prepared colleagues from the sixth forms of British schools. The Colonial university institutions can set an entrance standard related to the existing school system in their areas and yet, by adjusting the length and grading of their courses, not endanger the standard of the final degree. Whatever decisions the home universities take about entrance requirements for overseas students, the situation makes it still more urgent to enlarge the local provision for first degree courses in the Colonies.

The new matriculation requirements are merely one of the reasons reinforcing the policy recommendation of the Asquith Commission that normally the Colonial student should take his first degree locally. The content of the courses and the grouping of subjects can be adjusted to local conditions, while safeguards, such as the " special relationship " with the University of London and the use of external examiners, can guarantee that standards are maintained. As the

Colonial universities and colleges develop, a shift of emphasis may be expected in the distribution of the Colonial students proceeding to universities overseas: an increasing proportion will be post-graduate students and those taking specialist courses.

The present stage of development

Space will not allow even a brief separate description of the individual Colonial universities and colleges. One can merely pick out a few common aspects of the present stage of their development: three concerned with practical questions—constitutions, staffing and capital equipment; and three with educational or social questions —post-secondary education, language, and professional standards.

Constitutions

The constitutions of all the new Colonial institutions (Malaya, West Indies, Ibadan and Gold Coast) and the revised constitutions for the existing ones (Malta and Makerere) ensure their autonomy. The governing bodies are legal corporations, with full control of their own policies and properties. So far as charters and ordinances can protect this, the constitutions place control of academic affairs in the hands of the senates or academic boards. Methods of financing the colleges have been adopted which reinforce their independence. A start has been made in building up endowment funds; for example, Makerere College already has an endowment fund of nearly £600,000 and the Nigerian government has opened one for University College, Ibadan, with an initial contribution of £250,000. Recurrent grants from governments are, in many cases, given on the block grant principle. The seven governments contributing to the University College of the West Indies, for example, agreed to make block grants totalling £160,000 for the three-year period 1947–50 and £150,000 per annum for the succeeding three years. The Nigerian legislature agreed to an annual grant-in-aid of £100,000 for five years to University College, Ibadan. The Secretary of State for the Colonies gave a powerful lead in favour of the block grant principle and the non-earmarking of grants by outside bodies in a despatch to Colonial governments of 29th September, 1948, in which he stated that he would not " himself assume responsibility for formally approving the details of the annual estimates or require any other body external to the institution to do so." " The Secretary of State and the Treasury have agreed

to the adoption of these procedures for grants to the Colonial university institutions as a contribution towards safeguarding their academic autonomy and hope that other grant-contributing authorities will adopt similar measures."

Staffing

There are still great difficulties in recruiting staff, but they have not been as decisive a source of delay as was at first feared. The great majority of recruits have come from the United Kingdom, but an encouraging feature of recruitment has been the response from the Dominions. Each of the new institutions has men from the Dominions on its staff. They range in status from a Principal (Gordon), librarians (West Indies and Ibadan) and professors (for example, chemistry in the West Indies and Ibadan, anatomy in Makerere and Malaya, philosophy in the Gold Coast, biochemistry in Malaya) to assistant lecturers, assistant librarians and assistant registrars. Other nationalities are represented (for example, the professor of English at Ibadan is a Dane). West Indians have been appointed in West Africa. All the universities and colleges have appointed men and women of local origin to both academic and administrative posts.

Secondment of staff from the home universities has so far played only a small part. Bristol has lent a zoologist to the Gold Coast, Manchester an anatomist to Makerere, Cambridge an extra-mural tutor to the West Indies and Oxford extra-mural staff to West Africa. Secondment may become more common as the staff position at home and in the Dominions is eased. An element of mobility in staff arrangements is important to the Colonial institutions, whether introduced by the lending and borrowing of staff or by other means, because it strengthens their personal links with the rest of the university world. It is an encouraging sign already that staff movement is not all one way. Several members of staff from the Colonial universities and colleges have in the last two years been appointed to senior posts in the home universities; some of them had had their first academic appointment at a Colonial college. The continuance of such promotions and transfers will be proof of the maintenance of proper staffing standards by the Colonial institutions and will reduce the understandable fear of isolation which some have in considering whether to compete for a Colonial post.

Besides forging links with the home and Dominion universities at staff level, the Colonial universities and colleges have begun to make contacts at the research student level. Now that the Colonial institutions have an increasing number of departments under experienced scholars and scientists, postgraduate students find awaiting them a ready welcome, and laboratory, library and field facilities, if they want to be introduced to some of the vast range of research opportunities in the Colonies.

Capital equipment

From funds available under the Colonial Development and Welfare Act in the ten year period ending in 1956, £6 million has been allocated for the university programme. This is being used almost exclusively for capital purposes and the local governments are shouldering the permanent task of supplying most of the recurrent revenue. This capital sum is insufficient to meet the needs even of the next immediate phase and all the institutions are conducting appeals for additional help. In most cases, sites have been presented as free gifts by the local governments, such as the 700 acres in Jamaica, the five square miles at Ibadan, and the almost equally extensive site on Legon Hill in the Gold Coast. The city universities of Malta and Hong Kong find their small sites very congested; the University of Malaya is using the Singapore sites and buildings of its two constituent colleges, pending a final decision whether it should move and expand on a large new site on the mainland; Gordon and Makerere colleges are taking steps to increase their present sites to obtain room for long term expansion.

All have building plans in hand. The entirely new colleges, West Indies, Gold Coast and Ibadan, are in the meantime camping in huts or other temporary accommodation. Important and extensive as the permanent buildings will be, the still more important forms of capital equipment such as libraries are receiving special attention. The greatest achievement in this sphere has been that of Ibadan where in the course of two years, chiefly by some munificent gifts, the library has grown to over 50,000 volumes and has been designated the deposit library for all publications in Nigeria.

Post-secondary education

The debate at home about what should or should not be admitted as teaching responsibilities by the universities can at least assume

that, if a subject is not appropriate for a university, there are other institutions which can make provision for it. There are colleges of technology, polytechnics, technical colleges, county colleges, inns of court, training schemes of the professions such as in banking or accountancy or almoning, and a score of other post-secondary facilities. There is no such richness of opportunities in the Colonial world; there the post-secondary prospect is bleak—the few coveted overseas scholarships, teacher training, an occasional theological college or agricultural school, apprenticeship schemes or training centres in the government services, and a few more facilities.

This confronts the Colonial universities with difficult decisions. They are asked to undertake training tasks in fields or at standards which by home conventions are not those of universities. To refuse may mean that the job is not done at all; to accept may invest the work with a social prestige which makes it difficult to transfer it to another type of institution later. University education and degrees have an enormous prestige which will in any case powerfully attract the majority of school-leavers; if degree courses in the conventional sense are the only, or chief, means of systematic further education, there will be a very lop-sided development of Colonial education and society. There can be no single remedy. One proposal which the Inter-University Council has urged for West Africa is the establishment of colleges of further education, parallel and simultaneous with the creation of the university colleges. Such colleges would be something like polytechnics, with every effort being used to help them gain " parity of esteem " with the university colleges. They would provide a strong central core of general education in all curricula and be as free as possible to experiment in meeting and anticipating the vocational needs of their local communities. Whether this particular suggestion of regional colleges proves to be practicable or not, there can be no doubt that there is an urgent necessity to diversify the educational opportunities for the Colonial student after his secondary schooling. The success and speed of the development of the university institutions may have serious disadvantages, if they are not accompanied by a parallel advance in non-university facilities.

Language

The basic decision that English should be the medium of instruction in secondary or higher education was taken, or at least

occurred, long before the present phase of Colonial university expansion. The issue may be reopened later in the Sudan, but in British East and West Africa and the multi-lingual Malaya, there seems no prospect that any other language could challenge it as the *lingua franca* of learning. This means that, except in the West Indies, almost all Colonial students are studying through a foreign language and one which all too frequently is imperfectly acquired at the school stage. The language is often inefficiently taught in the schools; home conditions normally do nothing to improve it; the low standards of journalism, the scarcity of books and broadcasting and the minute amount of cultural activity in the student's ordinary environment place him at further linguistic disadvantage.

This presents one of the big challenges to the Colonial universities. Not only must they ensure that their own students gain a complete mastery over this instrument of study, but they must steadfastly strive to improve the standards of linguistic competence throughout the school system and the adult communities of their areas, by language research, by their teacher training, by their extra-mural work, by their publications and by all other means at their disposal. There is clearly a great mass of evidence through which the problem can be studied comparatively, for example that relating to developments in India and Russia, to "americanization" in the United States, to bilingualism in Wales and Palestine; studies in this field not only by language specialists, phoneticians and experts in educational techniques but also by psychologists and anthropologists, would be of service to Colonial higher education and to Colonial development generally, and some of the English and education departments in the Colonial universities are making this their first priority in research.

Professional standards

It would make an interesting appendix to Sir Walter Moberly's *Crisis in the University* to translate in terms of Colonial higher education the arguments, illustrations and formulation of problems in the book. The dissolution of traditional beliefs under the impact of Western influences, the moral and spiritual confusion created by imported religions and secularism, the dangers of accepting a culture merely by imitation, the problem of inexperienced political and social leadership at a time of radical change—all the problems of the Colonial societies in rapid transition throw on the members

of any leading institution, like a university, responsibilities which are direct and immediate. The ways to discharge them may not be obvious, but the responsibilities are conspicuous and inescapable.

The task is complicated enough if seen only in terms of the moral training of the individual student and of assisting him to discover a working philosophy and code of behaviour for himself. It is still more difficult when so many of the external aids which exist in more stable and mature societies are missing, such as widely accepted standards of professional conduct. The traditions of the civil service and of the professions such as medicine, law and education, have to a large extent to be created afresh in the Colonies as the new generations of locally trained specialists take over from the "expatriate" experts. The transition is rendered still more difficult when there is an atmosphere of distrust or political suspicion between the local community and the government. In some cases the firm establishment of professional standards is not made easier by the fact that the majority of the members will be government servants, deriving their status from their position as officials rather than from their position as members of the particular profession.

In these conditions, the obligations on the Colonial universities are exceptionally grave. In a sense still more direct than can be used in the metropolitan country, there is in the Colonies a crisis in society and a crisis in culture and these constitute a crisis for the university. It is one of the great assets of a university, with its democratic organisation, its peculiar intimacy and its freedom of discussion within the accepted common purpose of devotion to learning, that it can corporately, but without using authoritarian methods of imposing one particular dogma, respond to a challenge of this nature. It is none too early in these critical times that the Colonies should be equipping themselves with their own universities, in which staff and students regardless of colour or national origin are achieving a quality of cooperation and identification of interests which has scarcely occurred before within the Colonies.

REVIEWS

IMMORTAL DIAMOND, STUDIES IN GERARD MANLEY HOPKINS. *Edited by* NORMAN WEYAND, S.J. (*Sheed & Ward*, 21*s*.)

This book, earnest as its intent, is not without a certain macabre humour. The Jesuits, having discouraged Hopkins from writing poems while he was alive, and their editors having rejected all but one or two of those which he did write, are now busy seizing that treasure which he laid up after his death and making it their own. In this volume they carry out this policy with a wonderful combination of American heavy scholarship and reasoning which often amuses the reader by its "Jesuitry". Nevertheless, there is a certain naïveté in the attempt which accidentally reveals aspects of banality, sophistry and philistinism amongst the writers of the book which are exactly the qualities which Hopkins was up against in his lifetime.

One can sympathise with the protests of the Jesuits against the idea of Robert Bridges and many other writers that Hopkins's religion was a kind of imprisonment. Father Martin C. Carroll, in an essay exceptional in this volume for its dignity and understanding, makes the one point which reduces all further discussion to its true proportions. Hopkins's religious vocation was serious and he accepted its consequences as part of the suffering which was the result of an inevitable decision. His most important doubts about his poetic tasks came from within himself; and compared with this, frustration imposed from the outside was unimportant, or was only a projection of a self-imposed obstruction. The lack of understanding of him by his non-Jesuit friends like Bridges, was at least as harsh as the tasks imposed on him by the superiors who decided his fate within the Church.

Still, this does not excuse the complacency of some of the essayists here: this kind of thing from Father Chester A. Burns, for example:—

> "A religious order, the religious poet quickly discovers, is not a society consecrated to a dainty worthip of æsthetic sanctities. It is an organisation of rugged purpose seriously bent upon serving God as its proper constitutions require. . . . An order of poets would be an order of dynamic, delicately-geared personalities who in no short time would find their noble experiment in common life crowned with—disillusionment. Such, after the first few weeks of ecstatic general confusion, would to an accompanying loud peal as of thunder shatter to nothingness and be dissolved forevermore."

Father Burns's essay is a banal statement of the institutional view that exceptional talents cannot be made allowances for within the institution, because an institution of exceptional people would fail. Incidentally, Father Burns inadvertently states the strongest case against institutions of religious orders—that they provide shelter for conformist idiots, who take upon themselves the sanctity of the saints and the inspiration of the poets—after they are dead.

Discussion of the double vocation of Gerard Manley Hopkins is only illuminating, if one sees that it was, at least in part, an attempt to solve the problem of the life of the poet to-day. To some extent Hopkins was in revolt against the literary life of his time. Critics like Bridges are vastly mistaken in assuming that the choice for him as a poet was between bondage to the Jesuits and the complete freedom of the modern poet to live whatever life he chose. Hopkins rejected most decidedly the literary career of his contemporaries, and he wished to root his work in a life of devotion as sacred as the poetic vocation itself. Various remarks he throws out about his contemporaries show that he saw equally well through the sham of Victorian respectability and the sham of Bohemianism. The work of Tennyson, Browning and even of his dear friend Bridges stank in his nostrils with the smell of the professional literary career. By nature Hopkins was an extremist of the purest kind, as radical in politics as Karl Marx and in poetry as Rimbaud: but it would have troubled him that both were scoundrels. He stated that he was at heart a Communist and that the poet nearest himself was Walt Whitman; but to say this was to cause himself pain—because he knew the defects of both positions. His problem was to evade the compromise with contemporary standards which is the penalty of the life of the writer who finds a niche for his genius in society, and at the same time not to root his uncompromising purism in an equally materialist opposition.

This way of looking at Hopkins is more valuable, I think, than for the poets to nag at the Jesuits, and the Jesuits to claim his poetry as a product of their system. On the whole, their complacent attempt, so lacking in humility, to take him over is more deserving of adverse criticism than their behaviour to him during his life. Led by the Americans, the Roman Catholics of all kinds, including the Trappists, are now going in for commercial advertising. The unwilling saints of this new movement are Thomas Merton (sponsored by *Life* and *Time*), and Hopkins.

Worse, if possible than Father Chester A. Burns, is Father Arthur MacGillivray, S.J., quoting Eunice Tietjens, and anyone else who has anything to say about 'creative writing' courses: "Unquestionably, a true poet must have somewhere under his brain-pan, a subtle personal sense of organic rhythm".

The most serious contributions are those of John Louis Bonn, on Greco-Roman verse theory and Hopkins, and Walter J. Ong on Sprung Rhythm. Neither of these is conclusive, but both are serious efforts to get to the root of the matters. There is an amateurish, and therefore almost useless Interpretive Glossary, by Raymond V. Schoder. The Appendix, which contains reports—mostly from *The Times* on the losses of the *Deutschland* and the *Eurydice*—are welcome breaths of honest journalism.

Certainly there are valuable things in this book, but it seems a little surprising that a British publisher was found for a work which is neither a credit to American scholarship nor to the Jesuits containing as it does so many examples of a blatant opportunism. This book makes one sad for American spiritual life.

STEPHEN SPENDER.

A CONCISE ECONOMIC HISTORY OF BRITAIN, FROM THE EARLIEST TIMES TO 1750. *By* SIR JOHN CLAPHAM. (*Cambridge University Press*, 12*s.* 6*d.*)

Professor Clapham had intended to carry this "Concise Economic History of Britain" up to modern times, but he died when he had written only three out of his four projected books, and presumably before he had undertaken any final revision. Consequently the present volume stops at 1750, but is to be carried on in a complementary volume by Professor Court of Birmingham. As it stands, it loses something by having no bibliography and very few footnote references, so that for the most part the reader has to take Professor Clapham's statements on trust.

As ever, Professor Clapham here shows himself the most meticulous of historians, saying again and again that he can make no assured statement for lack of adequate evidence and packing into his pages an almost incredible quantity of factual information with all too little to unify it in the reader's mind. Much of the information that he has gathered together is extremely interesting, and the

selection is, on the whole, admirably balanced. Moreover, Professor Clapham is quite remarkably good at slipping in a pithy and suggestive comment to set the reader's imagination at work. Nevertheless, the treatment is unsatisfying, particularly in the latter part of the volume. It may be unavoidable in a short study of economic development to take fairly long periods as the units of presentation, and this method does not work too badly for the mediæval period which occupies the middle section of this book. Indeed, it works pretty well for the opening section, which carries the story " From the Earliest Times to A.D. 1100 ". Where it breaks down is when Professor Clapham comes to deal with the period that lies between 1500 and the middle of the eighteenth century, for these two and a half centuries constitute a period of so great and all-embracing a change in the general structure of British economic society that their treatment as a single unit obscures the picture of social and economic growth. Separate chapters dealing with agriculture, industry and trade, and finance over so long a range of years fail to help the reader to get any clear vision of what was happening at any particular time; and, as usual, the seventeenth century suffers most in such a presentation, in which it tends to appear rather as an interlude between the sixteenth and eighteenth centuries than in its own right as an epoch of remarkably significant social and economic change. Professor Clapham would have done much better to divide his history up to 1750 at least into four, rather than three separate studies.

One notable thing about the book is the large amount of attention which it pays to Scottish affairs—an aspect of British development commonly ignored, or at least too summarily considered by English writers. Professor Clapham has, moreover, a good bump of locality, seen at its best when he is dealing with his native Yorkshire, but also well developed in relation to the West Country and to the agricultural and textile areas of East Anglia. In general, he writes better about the country—including country industries as well as agriculture—than about the towns, in dealing with which he gives his readers in proportion too much about London and too little about such places as Bristol and Newcastle-upon-Tyne. On public finance, including the phases of Government economic policy, he is most enlightening: he is much less so in dealing with the Poor Laws and, in general, with labour conditions, though he does make a remarkably good attempt at measuring secular changes in working-

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Extreme conciseness, and the determination to give the reader as many as possible of the relevant facts and then leave him to reach his own conclusion—or not to reach any—inevitably make Professor Clapham's volume pretty tough reading for those who have not already a fair acquaintance with the subject. His work is much more suitable as a summarised presentation for fairly advanced students than as a text-book for beginners; and, like his three massive volumes dealing with the economic history of Great Britain in the nineteenth century, it is likely to be more used as a reference book than read *in extenso* by the non-expert. It is, however, despite its faults of presentation, a really remarkable display, both of scholarship and of the power to extract significant detail from the immense mass of material through which its author must have ploughed his way. G. D. H. COLE.

THE STORY OF JERUSALEM. *By* JAMES PARKES. (*Cresset Press*, 2*s.* 6*d.*)

Dr. James Parkes has made deservedly a reputation as a historian of the relations of the Church and the Synagogue, and more recently as the historian of Palestine, from the end of the ancient Jewish State, A.D. 135, to the creation of the new State of Israel in 1948. In this book he is concerned with one section of the latter story, which is to-day very much in the minds of a large part of the world. It is the story of Jerusalem, the Holy City of three faiths, Judaism, Christianity and Islam, with the holy places of the three communities and with its eternal appeal as the spiritual centre of nearly half of mankind. The historical part of the slender book is very concise, seven pages, of which a considerable part is given to plans. The larger section of the booklet deals with the present problem of Jerusalem arising from the United Nations proposal for an international regime. For Dr. Parkes emphasises that the story of Jerusalem is double: the history of the religious centre, and the history of a city in which ordinary men and women live their daily lives. It has been that through the ages for more than three thousand years; and " both sides of the picture need to be taken into account in planning its future ". He is concerned, also, to

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bring home to his readers what is often ignored, that Jerusalem has become increasingly a Jewish city, and for a century two thirds of its population has been Jewish.

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That point, however, does not weaken the argument against the attempt to impose an international regime which the two peoples inhabiting Jerusalem, the Jews and the Arabs, are determined to resist. The book was written before the last resolution of the General Assembly of the United Nations that pressed for the international administration without regard to the will of the inhabitants. And Dr. Parkes' arguments are not the less impressive because they were written in detachment from the latest events. His solution is a political division of the city between Israel and the Arab State, and an international commission charged with the care of the Holy Places. That is, too, the solution supported by the British Government; and it does seem to offer the best chance of "creating relations between the two peoples which might lead to enduring peace".

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The late Professor F. M. Cornford produced this admirable *jeu d'esprit*, which is addressed to the young man "in the first flush of ambition, and just beginning to make himself disagreeable," in 1908. It was reprinted in 1922 (with a new preface dwelling on its continued relevance after fourteen years and a great war); again in 1933; and again in 1949, after a still greater war, with a preface by Mr. W. K. C. Guthrie, who puts it among the classics, and claims for it not only a continued relevance but an even wider scope than its author envisaged.

Reading it now (I am ashamed to say) for the first time, I feel that he is right. Wit that is armed by malice is apt to lose its sting when its targets are removed by death. But the wit that springs from wisdom, as Cornford's did, lives on; for the folly of the world can be relied on to find fresh butts for it with unfailing regularity. For instance, Cornford, dealing with the subject of Discipline, wrote as follows: "The best sort of rules are those which prohibit important, but perfectly innocent, actions, such as smoking in College Courts, or walking to Madingley on Sunday without academical dress. The merit of such regulations is that, having nothing to do with right or wrong, they help to obscure these troublesome considerations in other cases, and to relieve the mind of all sense of obligation towards society." The butt at which that shaft was aimed has vanished from the field. But its place has been taken by even better targets—need I point them out?

I will not quote more—it would hardly be fair in the case of so short a book. Everyone who sits on committees, every business man, and all who agitate to get things done, should read it for themselves. Indeed, one cannot help feeling that a great many more would have done so, had it not been for its somewhat forbidding title. I, for one, confess that it would cost me a distinct moral effort to walk into a bookseller's shop, in any but a University town, and ask for *Microcosmographia Academica*. I can only guess that Cornford, when he chose it, was thinking of a comparable work written by John Earle in 1628 under the title *Microcosmography*, which contained this delightful remark: "A university dunner is a gentlemen follower cheaply purchased, for his own money has hired him." Even the sub-title has been rendered too narrow by

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Medieval studies occupy an important part in this book. E. A. Francis, Fellow of St. Hugh's College, Oxford, examines with great care the various problems concerning a very interesting "*Comte Pieux*", *Guillaume d'Angleterre*, and tries to cast precise light on the various links between this Romance and the works of the same period, in particular those of Chrestien de Troyes. Mildred K. Pope, Emeritus Professor of the University of Manchester, contributes an excellent "variant readings on three Anglo-Norman poems". Again wide knowledge and delicate precision on all the "lessons" give this study a quality that will not be appreciated solely by the specialist.

I would like to refer particularly to the exceptional quality of Professor Orr's contribution. He is well known as an expert in all the provinces of French literature and his edition of *Le lai de l'Ombre* has brought him wide recognition as a master in medieval studies. Here he gives the reasons which have dictated his choice between the several texts of his poems. Not only is his essay absolutely convincing, but it is a remarkable lesson in science and grace. In particular, his method of solving the problems of lines 46–49 is an example of sound knowledge and delicate interpretation. Anyone who is familiar with the Edinburgh edition of *Le lai de l'Ombre* must have felt that it demanded careful scrutiny and considerable work, but this very clear essay gives us a more intimate knowledge of the constant care with which the editor of such a difficult masterpiece must establish his text and compose his commentary.

It is also a pleasure to mention the long and well-informed article of Professor H. G. Hunt on René Bruyer's dramatic production. In this essay a playwright who has written a number of important plays receives due consideration. Mr. R. C. Knight traces the legend of Polyxène through its various forms until it influences Racine's Andromaque. Mr. Dechamps contributes a charming and precise article on *Napoléon et ses admiratrices britanniques* which reveals the depth of his knowledge both in history and literature.

St. Beuve and Cary are excellently compared by Professor Ivor D. O. Arnold, and Cary is given his full due. Professor F. H. G. Wood writes a penetrating article on the dramatic religious crises in the lives of Ernest Renan and Alfred Loisy and shows the remarkable influence of Cardinal Newman on the latter. Taine appears twice, once in a study by Mr. G. C. Wood on the influence of the

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Goncourt Brothers, and again in Professor Roe's article on Taine's study of the English mentality which he somewhat superficially identifies with that of the Germans.

Most of these essays leave us *sur notre faim* and could be well developed into longer studies, or even books. Mr. Denis Saurat with his usual perspicacity and directness underlines the shortcomings of Brunschvicg's editions of Pascal, and as we read his brief article we feel that he could write an illuminating study of Pascal as we see him now through the new editions of S. Tourneur (1933, 1938 and 1942), of L. Lafuma (1942), of P. L. Couchoud (1948). There is hardly space here to do more than mention the essay on Proust and Thomas Hardy by Professor L. A. Bisson, an expert on Proust, who has already cast a very clear light on the influence of G. Eliot on the celebrated French author, and who suggests with great delicacy of touch that Thomas Hardy may also have influenced Proust in his conception of love.

Théophile Gauthier and *Le Dandysme esthétique* is the object of a graceful study by G. M. Milner, of the University of Birmingham. Professor Roy Pascal gives a psychological study of great value in comparing Rousseau's Confessions and the autobiographical works of Goethe.

For a Frenchman it is extremely interesting to read Professor A. Lytton Sells' study of Leconte de Lisle and Robert Burns. Much light is cast on Bussy-Rabutin's friendship in the essay by Elfrieda Pichler. To those who are interested in the Hundred Years War, I can do no better than recommend Mr. G. Templeman's study of two French attempts to invade England under Charles VI: they will find amusing examples of mismanagement on both sides of the Channel. Lastly, the tribute paid to Pontigny and the fruitful *entretiens* of Paul Desjardins by the late H. F. Stewart cannot fail to move its readers.

That scholars of such high distinction should have composed this remarkable book is the highest possible tribute to Professor Ritchie's career and influence. The recipient is one of the eminent heads of French Departments to whom French literature and civilisation owe recognition as a first class subject in English universities. We can see through this book of *Mélanges* that French studies are in excellent hands, and we wish Professor Ritchie a long career exemplifying the qualities he has shown throughout his university life.

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UNIVERSITIES AND THE FUTURE IN INDIA. *By* DR. KEWAL MOTWANI. (*New Book Co., Ltd., Bombay, Rs.* 8. 4 *as.*)

In his book *Universities and the Future in India*, Dr. Kewal Motwani suggests the lines on which, in his opinion, Indian universities should be developed. The present system of education, he rightly maintains, is totally inadequate in its aims, its working and its organisation. The change he advocates is primarily a change in the attitude towards the purpose of education. In the main his thesis consists of a " Philosophy of Education ", based on the ideals propounded in the ancient Hindu philosophical texts of the " Upanishads " and the " Vedas ".

He assumes, from the individual's point of view, the distinction between the " internal " and " external " worlds, the former being " the world of the good, the beautiful, and the true ", and the latter, " the environments, the physical body, the groups of people constituting society ". The mind is the " point of conjunction " between these two aspects serving to unite them, so that they appear to the individual as an " organic whole ". From a collective point of view, he defines " culture " as the " totality of man's organised effort to live in association with other human beings ". The realisation of the " whole " man is possible only by an integration of all these aspects of man's individual and collective life, and the purpose of education is to co-ordinate and synthesise these parts to " enable the student to realise this vision of the whole ". The functions of the university, he consequently maintains, are " to synthesise the various branches of human knowledge", to transmit culture to the individual and accumulate the experience of succeeding generations, and, finally, to render the individual useful to himself and society by preparing him for that particular vocation to which he is best suited. It is unfortunate that Dr. Motwani does not carry his analysis into greater detail. His trend of thought is inclined to be obscured by his highly figurative style, resulting in the frequent use of loose and undefined terms. The assumptions underlying his theory consequently tend to be abstruse and require a certain amount of clarification. He asserts, in a footnote, however, that his thesis is intended for an Indian public, and since such assumptions are implicitly accepted in all Indian religions and philosophies, he considers himself under no obligation to discuss their validity. But to anyone, either not acquainted with Indian

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thought, or not willing to accept, *prima facie*, the distinctions he makes, his assumptions, it would seem, are open to serious dispute.

His theory of education is opposed to the system prevalent in the West, which he condemns as "analytical and utilitarian". The latter lays, he claims, too much emphasis on the intellect and neglects the development of the intuitive ability of man's mind. Due to this "pretentious" system of education, the average European—"the new barbarian . . . is more learned than ever before, but at the same time more uncultured". It is by intuition that the individual can view the various aspects of human knowledge in their proper perspective and it is to this end that the university must conform.

Dr. Motwani gives a brief account of the universities that flourished in ancient India and the views on education held by the subsequent ruling Muslim dynasties. He traces the history of the existing universities, and discusses the effects of the imposition of the British educational system on the country. The aim of this system was, Macaulay declared in his famous Minute of 1833, to produce "a class of persons, Indian in blood and colour, but English in tastes, in opinions, in morals, and in intellect," to serve as interpreters between the rulers and the mass of the Indian people. With the resulting "denationalisation" of the student and the suppression of his own culture, under an unwieldy, wasteful and restrictive administrative machinery, the universities in India failed to fulfil their functions towards "integrating" the individual and society. The reforms he suggests, such as the introduction of "religious education", the abolition of the bifurcation of Arts and Sciences, and the use of psychological tests to determine the student's aptitude for a vocation, may prove of value. He recommends regional universities with a simple administrative machinery, independent of political control.

His ideas, however commendable, require a more detailed and constructive analysis to be of any great practical value. His outline of the "new synthesis" that Indian universities should attempt leaves a considerable gap between practice and the theory, which, as it stands, is itself inadequately expressed. Apart from this obscurity of thought and diction, Dr. Motwani's book is a courageous attempt to provide a solution to the problems that confront the system of education in India to-day.

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